



OUTLINES
OF
A COURSE OF LECTURES

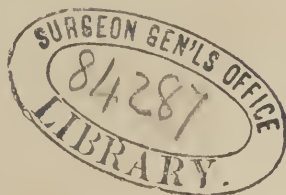
ON THE
MATERIA MEDICA,
DESIGNED FOR THE USE OF STUDENTS,

DELIVERED IN THE

MEDICAL COLLEGE OF THE STATE OF SOUTH-CAROLINA.

BY
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FOURTH EDITION.



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P R E F A C E .

THE following Outlines of Lectures on the MATERIA MEDICA, have been prepared in the intervals from business, for the use of the Class in the Medical College of the State of South-Carolina.

Several reasons have operated with me in their preparation. The succession of Lectures with which the student is daily occupied, renders it proper that the course of studies be facilitated by every practicable method. A plan which presents him with the subject treated of, will, by a little exertion of memory and attention, enable him to recall the opinions of the Lecturer, and by association, impress upon his mind the reasoning which has been pursued. It may be considered as furnishing him with an abstract of the Lecture, the filling up of which can be accomplished by reflection, when he returns to the study.

Another advantage of no small moment, is, that it spreads before the student the whole subject matter of the course, and enables him quickly to see its objects and extent.

It further facilitates the taking of notes, or supersedes the necessity, and thus admits of more undivided attention to the Lecturer.

How the task has been executed, they must judge. My efforts have been exerted to accomplish all that the foregoing remarks could promise. In preparing the Outlines, I have had reference to the most approved and latest authorities, and in my lectures, the sources of information will be detailed.

To aid the student still further, drawings of *Exotic* plants have been prepared, upon a scale four times the natural size, illustrative of the several parts from which the medicinal substance is obtained.

Of *Indigenous* medicinal plants, dried specimens, and where they can be provided, the recent plants, are always introduced, to make the student acquainted with their structure and appearance. A *Herbarium* of medicinal plants, prepared with much care and neatness at the establishment of the Friends at New Lebanon, New-York, will be presented to the Class.

HENRY R. FROST, M. D.

SYLLABUS.

INTRODUCTORY LECTURE.

RESPONSIBILITIES of a Lecturer on the subject of Medicine, and the reasons why these feelings should be entertained—Responsibilities of the student—No profession, except the Clerical, the duties of which are so arduous, and the results, issuing in life, or death, are more important—Student excited by the honors and rewards of the profession. The preliminary and collateral studies of the physician are of the most engaging character. His active duties attended with enjoyments of a still higher order—moral, benevolent, and religious feelings encouraged.

Qualifications and duties of medical students—Importance of education.

Of qualifications preparatory to professional education—of the study of Languages—English—Latin—Greek. These last selected for the formation of the various compound terms employed in science—Illustrated by furnishing a few words with their derivatives. French and German should be studied by every one desirous of excelling in professional literature. Other branches of knowledge—as Geography, History, Natural Philosophy, Mathematics, a liberal course of reading.

Qualifications during the student's medical education—The study of anatomy, with physiology, forming the ground-work of his medical course—the cultivation of organic science, with microscopic observation—organic chemistry.

To healthy anatomy, the study of morbid anatomy should succeed. Chemistry—applied to pathology and therapeutics—to the *Materia Medica*—vegetable analysis—Value of the *Materia Medica* to the student and general practitioner—Of other branches of study.

Duties of the Student—To study and qualify for the profession selected—force of perseverance—striving for the mastery in all undertakings—not on accidental circumstances, but on the character as students, that success as practitioners will mainly depend. To study and correct conduct, to be added humility—Improvement of leisure moments—The results to which it has led—Sir Astley Cooper's advice—Conclusion—General aim of the Lecturer to be as practical as the limits will admit.

GENERAL VIEW OF THE MATERIA MEDICA.

Its connections with other branches of Science—Natural History—Pharmacy—Chemistry—Physiology, and the practice of Physic. The natural substances employed as medicines are extremely numerous, and derived from the three kingdoms of nature—vegetables, minerals, animals. From the first obtained in the largest number—Remarks upon each of these divisions. Vegetables, though varied in their effects, and exercising an influence of the most opposite character, yet in their ultimate elementary arrangement exhibit a very similar composition;—oxygen, hydrogen, carbon, and sometimes nitrogen, enter into the structure of all vegetable substances. Though these elements exist in all vegetables, yet they are in different proportions. It is this diversity which gives rise to the great variety of vegetable productions, and places us in possession of remedies different in powers and in action, and adapted to every state of disease.

The active principles of plants being influenced by a variety of circumstances, particular attention should be paid to whatever relates to their growth and preservation. It is important when we wish to avail ourselves of their medicinal properties, that we should regard the period of their maturity, since to each period of their growth, there corresponds most commonly a chemical composition peculiar to that stage.

Remarks upon the general economy of plants, with directions for gathering and preserving them.

The choice of plants—the period for gathering the leaves, roots and seeds.

The means by which the medicinal properties of plants may be discovered.

1. The sensible qualities of plants, color, taste and smell considered, as determining their properties—remarks upon each. They will not admit of very extensive, or accurate application.

2. Botanical affinities. By these affinities is meant that plants agreeing in their general structure, habits and appearance, have also a similarity in their effects upon the system. Examples of plants allied to each other by affinities, also agreeing in their operation—the graminæ, or grasses—the labiated plants—the umbelliferous—the euphorbiaceous—the coniferes—the amentacies—Exceptions to these examples. These exceptions do invalidate the general principle, but are not sufficient to set it aside—since we must take into consideration the important influence of cultivation upon the properties of plants—being no less remarkable in the vegetable than the animal kingdom.

3. Chemical analysis.

4. Experiments or experience—not always conclusive—sources of error.

From the animal kingdom we derive but few medicines.

In what condition does nature present us with remedies in the vegetable kingdom?

Medicines are not simple substances, but will vary in their action ac-

ording to the principles they contain—The effects which follow their application to the organized body.

Remarks upon the importance of the Study of Botany to the physician—the study enforced from several considerations.

MODUS OPERANDI OF MEDICINES.

THE subject intricate and obscure—the operations of medicines dependent upon the vital actions with which the body is endowed—Remarks upon life and its effects—division into animal and organic.

The various parts or organs to which medicines are applied.

1. *The stomach and alimentary canal the most important.*—They become so from their seat and connexions. The two properties of the stomach upon which the impressions of medicines are made—its sensibility and irritability—The nature of the impression made upon these organs. 1. An increase of the vital energies of the part. 2. A change of action. The proofs of an increase of action—The impression not the same in all cases. It varies with the quality of the article. It is modified according to constitution, habit, the situation of the part, the state of disease.

That a change of action takes place, we may soon be convinced, if we administer a substance which produces a strong impression—Illustrated by examples from Emetics, Cathartics, Stimulants, &c. These effects of medicinal, or other impressions upon the stomach, which we term *primary* and *immediate*, are not alone to be considered of chief importance—it is their *secondary* or *therapeutical* operations with which we are chiefly interested—These enumerated :—

2. *The circulation* another channel for the action of remedies. The opinion of very ancient date, originating with the advocates of the Humoral pathology, and supported by many facts and experiments, particularly those of Magendie upon absorption—and confirmed by Lawrence and Coates of this country.

Examples of various foreign substances introduced into the circulation, and manifested in the secretions.

A solution of cyanide of potassium, tested by sulphate of iron in the fluids of the body—Various salts detected in the secretions and excretions—Volatile substances in the breath and exhalations—Madder in the bones.

Examples of substances injected into the veins, producing effects corresponding to those following their introduction into the stomach.

Conclusions from the preceding observations, and the advantages we derive through this channel in the operations of medicines and removal of disease enlarged upon.

All medicinal substances not equally susceptible of absorption. Examples of such as are—the saline preparations, camphor, the coloring matter of madder, rhubarb, saffron, assafetida, iodine, bromine, arse-

nic, the active principles of opium, quinine; acids—as nitric, sulphuric, hydrochloric. Effects upon the urine of the *Amanita muscaria*, a species of fungus.

Examples of substances absorbed with difficulty—cinchona, magnesia, jalap.

Remarks upon the conditions of the surfaces favoring or retarding absorption.

1. The articles to be closely applied to the mouths of the absorbents.

2. Not equally active in every part of the intestinal or mucous surfaces.

3. Surfaces should not be in a diseased state.

4. The general condition of the system will much influence the absorbent action.

Medicinal substances do not always enter the circulation in their original state.

1. They are decomposed in the stomach by a vital action, or by a chemical.

Vegetable medicines, like alimentary substances, may be digested in the stomach, and their active elements set free. Examples—*ipecaeuana*, *colchicum*, jalap.

Mineral substances—acetate of potash, bi-tartrate of potash, also undergo digestion.

2. Medicines decomposed in the stomach by chemical means, as the alkaline carbonates.

3. Medicinal substances may be absorbed entire, and be afterwards decomposed, either in the course of the circulation in the blood vessels, or in some particular secreting organ, and operate upon the nervous system by one or more of its constituents. Examples—the preparations of mercury—nitrate of silver decomposed by the capillary vessels of the skin to the state of an insoluble muriate of silver.

4. *The skin* next considered, and what action medicines exert through this medium. Experiments of Seguin, Currie, Klapp, Dangerfield, Rousseau, and others, on this subject. Several articles enumerated with which their experiments were performed—spirits of turpentine, perchloride of mercury, camphor, a strong infusion of garlic, a decoction of asparagus, without any test being discovered of their absorption by the skin.

Structure of the skin opposed to such a belief—squamous in its texture—while it remains unirritated and entire, no absorption takes place. When absorption takes place, the article is forced under the epidermis—parts of the body selected for this purpose—Or the epidermis has been destroyed by injury or disease—or the article erodes the skin.

These views supported by Beclard, who observes that the epidermis is truly an obstacle which often prevents the absorbent power of the external tegument.

Remarks upon *Endosmose* and *Exosmose* in the operation of medicines. Some parts of the body possess this property in a considerable degree—the serous membranes—the pulmonary mucous membrane—Resisted by the epidermis in a considerable degree—only after a degree of maceration has taken place by long immersion, that it takes place at all.

5. The influence of impressions attributed to the skin operates through the *Lungs* and the *Olfactory* nerves. The action of foreign substances upon them considered—as tobacco—the fumes of ardent spirits, &c.—these articles exert no action upon the system, when the nostrils are securely plugged, or closed. Influence of the Olfactory nerves on taste.

5. *Revulsive, or counter-irritant action of Medicines.*—The influence of irritations upon the surface, whether in the form of cutaneous eruptions, or of external applications, in relieving functional derangements of internal organs, is familiar to every one, who has observed the effects of either the therapeutical efforts of the constitution, or the means employed by the physician. Under this division is included Rubefacients, Vesicants, and Escharotics; also, cathartics, sudorifics, diuretics—Circumstances under which they are employed.

6. *Chemical action of Medicines.*—This effected by combining chemically, either with the substance of the body itself, or with the contents of the stomach and first passages. The action of caustic applications explained—nitrate of silver—vegetable caustic.

7. *Sympathetic action of Medicines—the origin of the term.*—The medicines which extend an influence to the system by means of sympathetic connections, make an impression more or less considerable upon the part to which they are applied. They change at first the vital operations of the gastric organ, and give to the nerves of this part a new action, which is extended to the whole cerebro-spinal system.

Examples—effects of stimulants—of quinine in arresting febrile diseases—of digitalis, &c. Strictly speaking, therefore, every article taken into the system, whether medicinal or otherwise, excites an extended chain of actions, and therefore those attached to the doctrine of sympathy, might argue that every thing operated by sympathetic actions. To maintain, however, that there is but one action common to medicines, *i. e.* sympathy, is to contend against all the discoveries which have been made in physiology, in the action of the absorbents, and of the numerous facts which have been related on this subject, and not only betrays ignorance, but violates all the rules of true philosophy.

Of other parts to which medicines are applied—the bronchial passages of the lungs—the interior of the mouth—the urethra and vagina—considered hereafter.

CIRCUMSTANCES MODIFYING THE ACTION OF MEDICINES ON THE CONSTITUTION.

1. *Original conformation or Constitution.*—This may often be connected with irritability of the moving fibre, or strong nervousness. Persons so constituted are greatly affected by atmospherical changes—and in the various occurrences of life, exhibit more than ordinary emotion.

Examples—Julius Cæsar—Bacon—Dr. Parry knew a lady, who

had long ceased to nurse, in whose breast a copious secretion of milk was produced, at any time, by hearing a child cry. This state of the nervous system greatly modifies the operation of medicines.

Influence of medicines resisted by persons in a high state of mental excitement, operating upon very susceptible conditions of the constitution, or extreme nervousness.

Examples—gonorrhœa very obstinate of cure, under such circumstances, in married men.

Temperament.—Sanguine and melancholic require very different modes of treatment in their diseases.

Idiosyncrasy.—The peculiarities displayed in various forms—sometimes the idiosyncrasy is in the organs of sense; at others, in the digestive organs; exhibited in the sense of touch—in smelling—in substances taken into the stomach—the white of egg causing sickness and an eruption on the skin like nettle-rash—strawberries causing syncope, succeeded by a petechial efflorescence on the skin—In the vital functions. In medicines—antimony salivating—valerian root causing nettle-rash—rhubarb followed by epilepsy—tartarised antimony in minutest doses, followed by violent effects—strychnine—belladonna, &c.

Age.—The various states of the human body, at different periods of life, have a considerable power in modifying the operations of medicines—in infancy, puberty, in advanced life.

Sex.—Not only differences in external conformation, but in the functions of the body—the genital, and uterine, influencing the operations of medicines.

Habit, or custom, modifies the action of medicines—illustrated in the use of opiates. Purgatives—the largest doses occasionally failing under disease to produce the desired effects.

Climate.—Dr. Harrison's experience. Neglect in observing the influence of climate in modifying the actions of medicines, has led to many of the discordant accounts of remedies by different writers, and the rejection of many valuable medicines.

State of the weather—season of the year—mental affections—modify the action of medicines; powerful influence of mind—confidence acts as a tonic to the whole system—the result of a medicine depends much upon the respect the patient feels for his physician—effects of distrust.*

ACTION OF MEDICINES MODIFIED BY COMBINATION WITH EACH OTHER.

THE subject of much importance—but little written on this subject, the attention which has been paid to it being altogether of modern date. This may excite some surprise, particularly as the combination of medicines has been practised for a long period.

* Thomson's *Materia Medica* furnishing much valuable assistance. Vol. 1.

Some of the prescriptions of the ancient physicians contain a great many articles united in one formula. Examples—the Theriac and Mithridate. Dr. Huxham, in modern times—some of his prescriptions are extant, which contain 100 or 200 ingredients. The purport of these remarks is to show, that by combining medicines, the energy of our practice could be much increased; and, by uniting them to a proper extent, greater activity be given to the compound not otherwise possessed, and even give rise to remedies of entirely new powers.

The division adopted :

1. To consider the benefits arising from the union of articles similar in their nature or operation.
2. The benefits arising from the union of articles dissimilar in their nature.

Constitution of a medical formula described; consisting of a *base*, *auxiliary*, *corrective*, and *form*, under which it is exhibited—remarks upon each.

The advantages of a union of similar articles, illustrated by several classes of medicines—among *Cathartics*, their union resulting in a quicker action, and more feculent discharges.

Examples—sulphate of potash, with jalap or rhubarb—calomel, with jalap—senna with salts—sea-water—mineral waters. By this union not only is the action of the article quickened, but its griping tendency is obviated, and a smaller quantity is sufficient.

Laxatives.—When one laxative is employed it is apt to produce sickness and pain in the bowels, and is uncertain in the degree of its operation—when several are mixed together, they are much less apt to produce these effects, and are more certain in their operation.

Examples—manna when given alone, and when combined.

Emetics.—Ipecacuanha, in union with tart. antimony, affords a more efficient medicine than either alone.

Among *tonics* and *alteratives*, the same rule applies:—Lisbon diet drink—compound syrup of sarsaparilla—Union of vegetable with mineral alteratives. The combination of medicines, it is designed, should be practised only in moderate limits. By multiplying these ingredients to an unreasonable extent, we would, instead of rendering the compound more agreeable to the stomach, excite disgust, and so reduce the dose of each constituent, as to fritter away the force and energy of the compound.

The same principle applies to the *preparation of food*; never employ one spice when two can be procured, when our object is to make the stomach bear a large quantity without exciting sickness.

2. Division—union of substances of a different nature. These combinations enlarge and extend the sphere of our remedial operations.

(a.) They enable us to contend with several symptoms of a disease, and produce two or more different effects at the same time, in a manner which is not oppressive to the patient.

(b.) They are useful in promoting the operation of particular medicines.

(c.) They, in some instances, give rise to compounds of entirely new powers.

The first head, illustrated by examples in diarrhœa, where the

object is to check discharges by the bowels, and increase secretion by the skin, we unite an astringent and diaphoretic, as in Dover's powder, or Moseley's vitriolic solution. In spasms of the bowels, to lessen pain and excite discharges from them, the union of calomel and opium is very effectual—In dropsies, to remove the fluid and support the strength of the patient.

Under the second, by a change in the composition of a medicine by increasing its solubility. For example—aloes is increased in its solubility by combination with gamboge; senna with salts; infusions of bitter vegetables with alkaline substances. It is owing to the insoluble character of some articles that griping is produced.

Under the third head, Dover's powder affords an example of the union of two substances, producing effects different from either. The narcotic operation of the opium is obviated by the tendency of the ipecacuanha to produce relaxation of the surface, and the diaphoretic operation of this last, is augmented by the stimulus of the opium, giving excitement to the action of the heart and arteries. The result, therefore, is a diaphoretic of great power and extensive utility.

Examples of chemical actions producing new products; the change in color and properties from the union of carbonate of potash, or soda, with rhubarb; the formation of an acetate of zinc, from the union of the super acetate of lead and sulphate of zinc—the neutral mixture—the black wash, formed by the union of calomel and lime water.

These remarks are more particularly useful and necessary, since, in the view of Dr. Rush, but few articles were required to contend with disease; and that armed with calomel and opium, tartar emetic and a lancet, physicians could encounter all “the ills to which flesh is heir.”

ON BLOOD-LETTING.

THE remarks upon this subject properly preceding the consideration of those agents, which, acting upon the several organs of the body, promote their secretions, and thereby lessen the mass of blood.

It combines many advantages. The promptness of its operation—its effect upon the system—not in abstracting from the quantity of the circulating mass, and the consequent abatement of activity in the sanguiferous system—but by the impression it makes upon the brain and nerves, it comes to be ranked among the most important of our remedies, the one which can with safety be appealed to in emergencies which threaten the overthrow of the animal fabric, or the derangement of its structure and functions.

History and importance of the remedy—its most distinguished advocates—May be practised with a view to a *palliative* or *curative* operation—When practised with the latter intention, in the early part of Febrile or Inflammatory diseases, directed to be carried to a considerable extent—Has succeeded in arresting the disease—Dr. Jackson's practice in the

concentrated forms of fever, particularly when the brain was affected—One large bleeding preferred to several small ones—greater shock given to the system—the morbid actions recently set up, either crippled in their progress, or brought to a conclusion.

The *palliative*, or auxiliary practice, to be preferred. Its advantages—particularly useful in bringing the disease to a safe issue.

When employed before organic derangements have taken place, more decidedly remedial, and more certainly beneficial, provided the system can sustain the shock, than any other single remedy. It is the least hazardous to those commencing practice.

The Febrile diseases in which it is employed :

1. In *Yellow fever*, the benefits following its employment. They are a reduction of the force and frequency of the pulse, checking, in many cases, the vomiting which occurred at the beginning of the disease—lessening the difficulty of opening the bowels—It removes delirium—coma—obstinate wakefulness—lessens muscular debility—eases pain.

Dr. Bartlett, in his *Treatise on Fevers*, considers the comparative merits of the antiphlogistic and mercurial methods of treatment, during the years 1828, 1829 and 1830, on board some of the United States vessels, and in the hospital of Pensacola. Practice of Jackson, Pinkard, and Moseley—practice of the author. Quantity of blood to be drawn—dependent upon the strength of the predisposing causes—the constitution of the patient—climate—temperament.

The time in which it is employed with most advantage in this and other fevers. Dr. J. Smith observes, that the physician, in the first stage of fever, armed with his lancet, is to the patient what the fireman with his engine, before the flames have had time to kindle, is to a building that has taken fire. At this early stage, the former can check inflammation with almost as much ease and certainty, as the latter can prevent the flames from breaking out.

2. In *simple continued, intermittent, and remittent forms of fever*, bleeding may often be required—should be carried, in all cases, to the extent of producing a positive impression—the pulse should be observed sensibly to yield to the evacuation—the blood being allowed to flow until it becomes feeble, small, and a disposition to faint, or actual fainting, be produced.

In *Remittent fevers*, complicated with determinations to the hepatic system, blood-letting is often of the utmost importance—relief obtained to many symptoms—as headache, irritable stomach, restlessness, pains in various parts of the body—the action of cathartic and other medicines promoted—organic derangements prevented—convalescence proportionately rapid—The effects of blood-letting powerfully supported by the affusion of cold water—a valuable auxiliary, and substitute for continued bleedings, without its exhausting effects.

Manner of using the cold affusion.—With these means, evacuants of a mild character are to be employed. This course pursued, such derangements of particular organs prevented, as results in congestion, particularly congestions of the brain—and which, when established, all the stimulants which can be applied are insufficient to overcome.

New views in the treatment of febrile diseases referred to—Venæsection and other depleting remedies objected to—and quinine made to usurp the place of all other active remedies—not carried along so far by the current of popular opinion as to allow such innovations. Quinine may be used much earlier in diseases, and with more freedom, than in former years, but its powers materially aided by a preparatory treatment.

Utility of Blood-Letting, and the Cold Bath, in Depressed States of the System.

1. *In Congestive Fever*, to restore re-action. Practice of Dr. Thos. Barbour, of Pulaski, Tenn.* Under the combined influence of these agents, reaction, if at all possible, soon ensues—the surface rapidly recovers its natural temperature—the pulse from being quick and thready, becomes fuller, softer, and more regular—from insatiable thirst and uncontrollable restlessness, the patient often experiences so much relief, that it is not uncommon for him to fall into a quiet and refreshing sleep, from which he awakes greatly improved.

This practice pursued, where there is no contra-indication from age, intemperate habits, or feeble and broken down constitution. The objections which might be made to this practice, should not set aside the lessons of experience—its apparent unreasonableness not stand in the way of its adoption, if clinical observation establishes its utility.

In Typhus Fever, blood-letting is employed to prevent cerebral symptoms. The cause of the fatality in most cases—Used not only to relieve symptoms, but to prevent this symptom—Objections may be made to it from the debility which exists. This is a reason for abstracting a small quantity at once, a few ounces, but not to reject it—Other debilitating remedies are employed, as leeches, blisters, purgatives, antimonials.

What is weakness, or debility, to delirium, or coma? Debility alone, a small consideration in comparison to either. Those cases of typhus go on most smoothly, which require to be fed all through the disease, in which weakness has been from first to last a prominent symptom.

In inflammatory diseases, a remedy much to be depended upon. In these cases, the time, the quantity, and the suddenness with which it is drawn, are all-important.

The quantity to be drawn will depend upon the state of the pulse—the degree and seat of the inflammation—but the effect of the impression may always be increased, by bleeding from a large orifice—or by placing the patient in an upright position. This practice may very properly be pursued with delicate constitutions laboring under high arterial excitement—or where it is desirable to secure the consequences of free depletion, without its exhausting operation. In practising blood-letting, the effect to be obtained, or the impression made, to be the measure of what is drawn, rather than the apparent quantity.

* Vide American Journal Medical Science

The system readily accommodates itself to large abstractions. Instances related of large quantities of blood being lost in disease, in surgical operations, on the field of battle, in parturition, in improper situations of the placenta; proving that when judiciously managed for the cure of diseases, blood-letting may be extensively employed.

In *Inflammatory* diseases will be found a powerful curative remedy—and when an organ is inflamed, it may be employed unhesitatingly.

In *Pneumonia* and *Pleurisy*, may be freely employed. The general directions given should be attended to. The quantity drawn should be influenced by the degree of inflammation present, the age, habit and constitution of the patient—Carried to the extent of relieving pain, or tendency to syncope.

In *Dysentery*.—In the cases requiring this treatment, it will be found useful by lessening excessive pain and tormina, removing mucous, and bloody discharges, substituting for them feculent matter—Laxative medicines operate with best effects after bleeding—a further proof of the good effects of blood-letting, when required in this disease, is the relief which is obtained by a natural hæmorrhage from the bowels—other remedies also required in acute cases.

In *Inflammation* of the *Brain*, or *Arachnitis*, *Encephalitis*, or *Cerebritis*—the advantage of this mode of depletion, or rather its superiority over other means, is very conspicuous. Other means are useful, but blood-letting has decided advantages. Not unusual to observe every exacerbation in the progress of such case, denoted by restlessness, delirium, increased frequency of pulse, of 10, 15 or 20 pulsations, subside after the loss of a few ounces. Fainting or syncope in this inflammation not readily induced—for the excited condition of the brain keeps up a constant determination to that organ, and prevents syncope.

In *Ophthalmia*.—The great utility of this species of depletion must be apparent. From this disease we will take the opportunity of illustrating the utility of venesection upon an important system of vessels, the *capillaries*—constituting the seat of inflammation—The capillaries being inflamed and distended with blood, no remedy more important to relieve this distension, and to lessen the impetus of the advancing column. An inflamed eye, which is red as scarlet before bleeding, in a few moments is essentially improved in its appearance, and a repetition will frequently remove it.

In *Acute Puerperal Peritonitis*, or *Puerperal Fever*.—The treatment must be antiphlogistic—One direction should be particularly enforced, that it be drawn *early* and *freely*—unsafe to resort to this evacuation after the disease has been established thirty hours. Many authorities adduced as to its utility in this disease—Drs. Alex. Gordon, La Gouais, Meigs, Lee. The state of the pulse should not deter from the use of the remedy—often small and contracted, but becomes fuller and stronger during the time the blood has been flowing, or soon after. Pain a safer guide than the pulse.

The great mortality which has taken place in this and other varieties of uterine inflammation, certainly cannot be attributed to the abuse of blood-letting, for it is observed that few of those bled early and copi-

ously, died ; while those terminated fatally which either were not bled at all, or very late and sparingly, and took stimulants.

Blood-letting not recommended in febrile inflammatory diseases, to the exclusion of other active remedies—other valuable auxiliaries.

Objections to the use of the lancet considered and answered.

1. Dropsies and anasaruous swellings the frequent consequences of its employment.

2. Increasing the debility which exists in febrile diseases.

3. Rendering its habitual employment necessary.

Conclude by noticing the *immediate* effects of this remedy on patients laboring under disease.

A reduction of the force and frequency of the pulse.

The sudden removal of pain.

Reducing the temperature of the surface.

Promoting the operation of cathartic medicines.

Tendency to induce sleep.

Morbid effects of blood-letting.

LOCAL BLOOD-LETTING,

COMPREHENDS Leeching and Cupping—Natural history of the *Hirudo Medicinalis*, or Leech.

It is characterized by an oblong body, very contractile, having each extremity capable of being expanded into a fleshy disc, by which it adheres to the body, with a kind of suction similar to a cupping glass—a triangular mouth situated under the anterior extremity, armed with three very sharp, strong, teeth, and a sucker at the bottom, by the assistance of which it draws blood from the wound it inflicts.

Utility in various inflammatory affections. In these cases they are frequently of considerable service, but it is as an *auxiliary*, rather than *primary* remedy.

In all acute cases, particularly of important viscera, general bleeding should be used to break the force of the disease, and after sufficient reduction, local measures are resorted to, to prevent a further expenditure of the vital powers—and to act with peculiar advantage at this time on the part diseased.

In *Inflammatory* affections about the throat, in the abdomen, thorax, or cranium, or in the limbs and more superficial situations, the benefit derived from the application of Leeches, can often be obtained by no other means. To particularize some of these examples :

In *Cyananche Trachealis*, or *Croup*—the application of leeches will very properly precede the employment of blisters, and in Quinsy, they have been known to afford great relief.

In *Inflammation* of the *Pulmonary* organs, local blood-letting is

often employed with great advantage, and applied to the thorax, may be considered as acting locally on the lungs.

They exercise beneficial effects, not only by the *depletion* which follows, but also by *revulsion*.

In *Inflammation of the Trachea* and in *Bronchitis*.

In the painful, irritating cough of the latter affection, applied above the sternum—in the pit formed by the intermediate space between the sterno cleido mastoidei muscles, they will be found very serviceable.

In *Pneumonia* occurring in children, they are a remedy of the utmost importance, and their utility should be held in recollection—Applied to the part affected as indicated by the stethoscope, and at a proper period of the disease, they will contribute very much to shorten its duration. Other modes of evacuation useful, but blood-letting, general or local, highly important. Not omitted in a disease of such fatal character—more so than croup, bronchitis, or whooping-cough.

In *Inflammation of the Stomach and Intestines*.

The flow of blood promoted by washing with warm water—or by cupping glasses—or by warm fomentations—or poultices—removing them as they become cold.

In all *Local Inflammations*.

In cases of *Extravasated Blood*, *Ecchymoses* and *Contusions*.

In *Local Plethora*, or *Congestions* about the head, heart, threatening or producing apoplexy, a useful preventive check.

In *Phlegmonous Inflammation of superficial parts*.

In *Erysipelatous Inflammation*.—In the latter not much employed in this country, but in France much resorted to. The practice in using them. When the disease spreads extensively, they must be applied directly over the inflamed membrane—they should be scattered over the surface. From the External surfaces, their use has been extended to the Internal.

In *Ophthalmia* they have been applied to the conjunctiva of the eye, lining the tarsus. The reports in favor of this practice are very encouraging, but I have employed it with effects not equal to expectations.

Manner of applying them to the Conjunctiva.

Lecches have been applied to *Inflamed Tonsils*—to the Nostrils, to the Uterus, and Rectum.

Manner of using them.—As they are very sensitive to strong odors, the part to which they are applied, should be first washed with soap and water, so as to remove the matter of perspiration, and the skin should be wiped dry—The Leeches should be applied one by one with the fingers—or placed in a glass covered all over, except one edge. The leeches should generally be suffered to fall off the spot spontaneously. If forcibly separated, the teeth which penetrate the skin, and which swell when inserted, are apt to be torn off.

They may be made to drop off by sprinkling with salt or snuff.

The Lecch drops off when it is gorged, by falling into a state of asphyxia from want of respiration.

The number to be applied will vary with the age. The quantity of blood drawn by each leech, will depend upon the quality. To the blood drawn by the leech, must be added that discharged by the punctures.

The discharge from this source is often very considerable, and occasionally very difficult to check. Means to be resorted to—use of colloidion in arresting hæmorrhage from these punctures recommended.

Leech Fishery.

CUPPING.

RESORTED to, when besides the loss of blood, it is also desirable to excite much irritation on the skin, being *revulsive* and *depletive*—Employed for the same general purposes as Leeches. The diseases to which this remedy is adapted will correspond with those which have been already mentioned under the head of leeching. They are applied to various parts of the body—the temples—scalp—back of the neck—along the spine—to the chest and other places.

The manner in which the operation is performed—

Dry cupping—and with the scarificator. The former a very prompt and efficacious method of producing counter irritation in acute pains—it may with much advantage be resorted to in spasmodic affections of the bowels—in Cholera—in Cramps—Small tumblers may be employed for this purpose. Two or three applied to the abdomen are sufficient for this purpose—a valuable auxiliary applied to the back of the neck in Epistaxis.

Cupping glasses to Poisoned wounds—with a view to prevent the absorption of venomous matter—experiments which were performed to illustrate their utility. Strychnia, or hydrocyanic acid, introduced into wounds made in the thighs and back of full grown rabbits—Cupping glass applied, and renewed as often as it fell off, no symptoms of poisoning occurring; but when removed, convulsions brought on. Other poisonous articles employed, and with similar results. Dr. Barry's explanation of the *modus operandi*—That of Drs. Pennoek and Rodrigues.

Treatment of poisoned wounds recommended.—The application of a ligature above the affected part, and the employment of suction by the mouth. This method I would recommend in cases of poisoning, or suspected poisoning from animals, as more prompt, more effectual, and more safe. Inasmuch as it can be speedily practised, it is superior to excision or caustic. If there are no ulcers in the mouth, no apprehension need be entertained; for should a portion of the saliva impregnated with the poisonous matter be swallowed, no injury would result, since, from the experiments of Orfila, the poison of the viper may be introduced into the stomach with perfect safety—Not always successful; pursued in the case of Dr. Wainright, of New-York, but with fatal termination.

MATERIA MEDICA.

HAVING considered all the subjects introductory to our subject, we will now proceed to those which are particularly to engage our attention.

The Materia Medica is commonly divided into aliments and medicines. Though not always followed by systematic writers, it is certainly correct, and productive of much practical utility. Every practitioner should be acquainted with the kind of diet which will suit different disorders, and more particularly how to direct the regimen of patients in such a manner, as not to be unmindful of their comfort, and of the very essential aid which is to be furnished to the medical treatment from this source.

Definition of the Materia Medica, more properly *Materies Medicæ*—the department of medical science which teaches the knowledge of remedies, or the substances employed in the cure of diseases.

The subject diffuses itself very extensively, comprehending the *natural* and *chemical* history of the different articles; the method of preparing them for use; the application of these articles to diseases; their doses, and best modes of administering them.

Previous to the consideration of these points, it will be proper to treat of the Classification of so extensive and multifarious a list of remedies as this branch comprises—Importance of a good arrangement in facilitating the acquirement of knowledge; a good system in science being like a fine building in architecture, where, from the skill of the architect, the various rough and heterogeneous substances which enter into its composition, are so ordered, each in its proper place, as to present to the eye a uniform and harmonious whole; so in the Materia Medica, the confusion which would arise from a large number of articles being irregularly treated, yields at once to the simplicity, order, and ready comprehension afforded by a judicious classification.

No branch of science affords a more manifest foundation for associations, than that which treats of the different articles employed in the cure of diseases. Distribution of medicines into classes of very ancient date—During a period so extensive as that in which medicine has been practised, many different distributions have been formed, and a variety of general terms introduced for expressing them.

Brief account of the various plans of arrangement which have been pursued.

First, in point of time and simplicity, is the alphabetical arrangement. From this, we can derive no information with regard to the *specific* virtues of various substances admitted in the catalogue of the Materia Medica.

Another mode was founded on the class of bodies or kingdoms, to which the different substances belonged. Thus we had three general divisions, animal, vegetable, and mineral.

Another upon an investigation of the sensible and most obvious qualities of the medicinal substances.

These divisions are too general, indiscriminating and uninformative. For example, some substances have no discriminating sensible qualities; others possess several so nearly similar, that it is difficult to refer them.

to one class, in preference to another; and others again resemble one another in their sensible qualities, and yet are very different in their effects upon the human frame.

Another upon the medicinal operation of the article upon the system. This arrangement must be considered the best for classification, as well as to present to our view the predominant characters of such a variety of articles as the *Materia Medica* comprises. Medicines ought to furnish the characters which serve to unite, or to separate them—and what characters can be preferable to the effects physiological and practical which they excite. Dr. Cullen has arranged the articles as their operation is exerted upon the solids and fluids of the body, and has distributed the various substances in twenty-three classes; Dr. Darwin comprehends them all under seven classes.

A fifth into classes, according to the systems of the body upon which their action is exerted.

The following is the arrangement which will be pursued in these Lectures :

1. To treat of those medicines which irritate the stomach and duodenum.

This division comprises Emetics.

2. Those which irritate the internal surface of the intestines.

This division comprises Cathartics.

3. Those which increase the natural operations of the intestines without exciting irritation.

Laxatives comprised under this division.

4. Those which destroy, or counteract offending substances lodged in the alimentary canal.

Under this division is comprised Anthelmintics and Antacids.

5. Medicines which promote particular secretions.

a Of the skin—Diaphoretics.

b Of the kidneys—Diuretics.

c Of the uterus—Emmenagogues.

d Of the salivary glands—Sialagogues.

e Of the bronchial passages—Expectorants.

6. Medicines which strengthen the organized structures—Tonics.

7. Medicines which in strengthening, also restrain excessive discharges—Astringents.

8. Medicines which lessen the energy of the nervous and muscular systems—Narcotics and Anti-spasmodics.

9. Medicines *incertæ sedis*—those whose action is not well determined, and which cannot with propriety be arranged under any of the foregoing divisions.

In this proposed distribution, there as many classes of medicines as are sufficiently determined by their characters, and by the phenomena which are proper to them.

Each division represents a particular medical property, which is discoverable in all the natural substances comprehended under it. This property not the same in all the different substances—they have not the same energy, but it is sufficient to justify the alliance which is made, that each exerts the same organic phenomena, and that the substances

of each class produce an action bearing a considerable resemblance to each other.

Objections which may be made to the proposed arrangement.

Every article treated of more particularly under that head in which its powers are most conspicuous—when, from a difference in its preparation or its exhibition, other properties are discovered, it must again be considered under such other divisions as correspond with the virtue specified.

The medicines of these Classes do not act in any of these modes uniformly and invariably. From the states and conditions of the organs attacked, the same remedies exhibit often the most opposite effects—a cathartic will often prove emetic, or the reverse; a febrifuge increase fever, &c.

Nothing absolute—the operations of medicines modified by the condition of the organs or system—In prescribing an article, it is important that the condition of the part, or system, be accurately known—that the nature of the impression made by each article, as well as the force of that impression, be also known—the modifications that are to be pursued, as relates to age, sex, idiosyncrasy, climate, season—that the preparation be such as to furnish all the results that may reasonably be expected after all the foregoing knowledge has been obtained—and lastly, in what shape, or what states of combination, the medicinal agent produces the most powerful and beneficial effects. Upon some, or all of these subjects, it will be my duty to enlarge, and as much as in my power, to afford you just, reasonable, and proper views upon the action of medicines, so that without extolling them unduly on the one hand, or depressing them unnecessarily on the other, present you such changes either in the body to be acted upon, or the agent, as will secure or defeat the intentions we may have in view.

In commencing any of the divisions, the following is an abstract of the leading objects which will be considered:

1. A definition of the Class.
2. Direct effects of the class, and the changes induced in the system by these direct effects.
3. Effects of the class in the cure of Diseases, and practical remarks upon its use in particular diseases.
4. Directions to be observed in the use of the Class.

The History of particular articles.

1. The Natural History.

Under this head will be considered its natural Family, sensible qualities, chemical analysis.

2. The Medical History.

The preparation of the article.

1. For a convenient form.
2. For preservation.
3. For external uses.

Combinations of the Article.

1. For augmenting its virtues.

2. For correcting its active powers.

Lastly, the adulterations.

Pursuing the arrangement proposed, I shall consider under the first division.

DIVISION 1.

Medicines which irritate the Stomach and Duodenum.

This comprises the articles termed Emetics.

Definition of an Emetic—Many substances may act as Emetics—but we understand by them, such as act by a specific impression upon the stomach.

The importance of this class of remedies—Their usefulness apparent by controlling the operations of so essential an organ.

Objections have been made to this class of remedies, and some prejudices have existed against them.

These considered and removed.

Another objection to Emetics, is, that they are weakening remedies, and exhaust the patient too much—This objection will also appear equally unfounded, for the weakness which occurs in the *early stages of disease*, does not arise from real *exhausted strength*, but from the *nervous system being depressed*, in consequence of the action of morbid substances on the stomach, and which is extended over the system. Any degree of languor, or weakness, produced by an emetic, cannot be so mischievous, as suffering the morbid cause to continue in action—Whatever therefore will evacuate it from the system, so far from weakening, will restore strength, and this fact most of us have experienced, either as relates to Emetics or Cathartics.

The immediate effects of Emetics, and the Physiological phenomena following their employment.

The operation of Emetics upon the mucous coat of the stomach is irritating—The effects of this irritation are an increase of all the vital actions of the mucous membrane, the blood penetrates it, the capillary net work existing upon its surface, is more red, and more sensible—These effects are extended to the duodenum, and the same organic phenomena excited—This increase of the vital energies of the stomach and duodenum is only of short duration—If it was of long continuance, it would cease to belong to those operations which are considered sanatory; it would partake of the action of disease.

The impression is soon effaced, without leaving any traces of its effects, within a very short time after they are administered.

To these effects of an Emetic of a proper character, others quickly succeed.

The secretions are increased in a considerable degree.

1. The serous exhalation.

2. The secretion from the mucous follicles is augmented.

3. The secretions of the large glands opening into the duodenum are increased.

a. The Liver—It is not probable that the quantity of bile frequently rejected, could have existed in the stomach or duodenum previous to the taking of the Emetic—The secretion of the fluid is often excited by the medicine taken, and is the result of irritation upon the surface of the duodenum extended by means of the Ductus Communis Coledochus to the liver—Particles of the emetic substance may also be absorbed by branches of the vena portæ and carried to the liver, adding another irritant to this organ. To these sources furnishing an increased supply of bile, must be added the compression of the gall bladder.

The secretory operation of another gland is promoted. The Pancreas partakes also of the irritating operation of emetic articles, and its secretory action increased.

The effects of this irritation do not cease here—The muscular coat of the stomach and duodenum feels the influence of this new irritation—By its contraction, the contents of this organ are expelled, and we have all seen how violent and severe it is in many cases—being so complete as to reject the smallest quantity of fluid which has been swallowed.

Another effect still produced—A change takes place in the regular and accustomed operations of this coat—Its action is inverted, and the contractions proceed from the pylorus to the cardia.

How is this inverted action explained?

Is the evacuation of the stomach the result of an active operation of the organ? Magendie maintains that the stomach is passive—and that vomiting is occasioned by the pressure of the abdominal muscles and diaphragm upon it—This opinion at variance with the received opinions of Physiologists.

The experiments of Magendie have been repeated—and while the importance of the action of the diaphragm and abdominal muscles has been acknowledged, the contractions of the stomach were also considered necessary, to effect the expulsion of its contents—Such our conclusion, from the uniformity which takes place in this operation—the diaphragm becoming contracted, the ribs drawn down, the abdominal muscles drawn inwards, so that the stomach is pressed on all sides by voluntary muscles, its own contraction is all that is required to expel its contents.

The Local operation of Emetics is not alone of interest to us—It is the actions it excites in various parts of the body—it is the changes which are produced in the exercise of its functions, which are important to be known.

The general effects of Emetics.

1. Upon the Brain and nervous system.
2. Upon the Circulation.

The secretions are excited.

1. Expectoration is promoted—The contraction of the diaphragm and abdominal muscles, with their alternate relaxation, variously agitates the motion of the air in the lungs and bronchiæ, and therefore promotes expectoration.

2. Diaphoresis is promoted.

3. The action of the absorbents is increased.
4. The secretion of the kidneys is more abundant.

Rules to be observed in their administration :

1. Where there is plethora of the system, or the habit disposes to plethora, general bleeding should precede the administration of the emetic—least from the strong determination of blood to the head, apoplexy be induced, or a rupture of the vessels of the brain.

2. When the necessity is urgent and a quick operation is desired, a large dose of the most active Emetic must be given.

3. In ordinary cases it is best to give them in divided doses.

4. If the operation of the Emetic is too violent, the best means of checking it is fomentations to the stomach, and if necessary to the feet—anodynes in large doses. During the existence of pain, it is necessary to administer them in large doses—Pain so modifies the action of opium upon the nervous system, that large doses can be taken with impunity.

If these means fail, an anodyne enema should be administered—The warm bath may be required—or the abstraction of a few ounces of blood—Counter agents may be required to neutralize the emetic salt which has been taken. If the Tartarised Antimony and Potash, an infusion of green tea—or other astringents—if the Sulphate of Copper, or other salt of this metal, albumen diluted with water—or sugar and water drunk freely.

In Irritable conditions of the stomach, whether brought on by Emetics, or other causes, it is important to administer medicines, and drinks, in the smallest possible quantity—It is the custom to give drinks freely in these cases, and the thirst is also urgent—but from the condition of the stomach, it is rejected as soon as taken—a mouthful, or a table-spoonful, will be sufficient to moisten the throat, more will be rejected—Sometimes entire abstinence is best.

5. Do not allow the apparently inactive state of the stomach to induce you, to augment the dose of an emetic to a preposterous extent—When the stomach is insensible to the operation of one emetic carried to a reasonable extent, the best practice would be, to have recourse to another, as sensibility may exist to the stimulus of one article, when it refuses to respond to another—Dr. Paris observes, that although the stomach be unable to void its contents by vomiting, it may, nevertheless, retain its sensibility, and therefore be liable to inflammation—A case is related of a practitioner attempting to excite emesis in an Epileptic patient by a large dose of the Sulphate of Zinc, which produced inflammation of the stomach, and a fatal termination.

APPLICATION OF EMETICS TO DISEASES.

They are adapted to a great diversity of cases—This attributable to the extensive surface which the stomach and intestinal canal presents, to the variety of irritating matters which are daily introduced into them,

from the combined sources of extraneous articles of food, and the occasional morbidity of their natural secretions. There is also a considerable affinity between the surface of the body and the intestinal canal, so that when perspiration is checked, as by the application of cold, the natural secretions into that canal are increased, which becoming acrid and irritating, add to the original exciting causes.

Their beneficial operation may be arranged under the following heads :

1. *As Evacuants*—In *Febrile diseases* they will often be found highly beneficial—These diseases generally accompanied with symptoms which mark a deranged condition of the secretions, and a departure from healthy action.

The symptoms are, impaired appetite for food—weight at the precordia—abdominal distension—with nausea, thirst, and furred tongue. Under these circumstances, the propriety of their employment must be manifest. They should, generally, be of an active character, not only to evacuate and renew secretions—but to make such an impression upon the general system through their influence upon the nervous, as to alter and subdue the existing diseased actions.

I have occasion to employ them in every case of Fever.

The cases requiring their employment—When the fever has been preceded by a meal which oppresses the stomach—when nausea distresses the patient—when an unpleasant taste is complained of—when headache exists.

In most cases, headache will be found connected with the disordered condition of the stomach, and of its secretions. If bile is not present, there will often be acidity in excess, and patients will state to you, that it is of such a character, as to place the teeth on edge—It is then a good general rule to evacuate the stomach.

Cases of *Febrile disease*, where they are contra-indicated—when there is determination to the stomach and intestines—This determination is indicated when the stomach is irritable, with occasional vomiting of thin fluids—or frequent retching—When the tongue is red—when pain and soreness exist in the epigastric region upon pressure being made.

In the *Bilious Remittent* and *Intermittent Fevers* of our country they are often indicated.

In *Intermittents* their operation is sometimes remarkable, not unfrequently putting a stop to the disease.

In *Fevers of a Typhoid character*—In *Eruptive diseases*—No one remedy can be beneficial in all cases, and at all times.

Emetics were condemned by Broussais, a very popular writer and practitioner, under the impression that they produce such a degree of irritation as to produce a Gastritis—and that if the patient labored under Fever, it would be converted from a mild form, to one of a more violent character—and under these apprehensions of their use, he restricts their employment to a very few occasions—The objections answered—and an appeal made to experience for a full refutation of them—The author's testimony in favor of their utility, and the beneficial effects derived from them—not confined to the early stage of disease, but may

with safety be given, in the middle and advanced stages—May even be useful in some of the mild forms of Gastritis itself, by changing the condition of the organ, and substituting an impression followed by critical evacuations, and of a different nature, from that constituting the disease.

2. *Emetics useful as Diaphoretics*—They operate beneficially in Febrile diseases, not only as evacnants, but by promoting the secretions, particularly by the skin. In these diseases, this secretion is checked from the high arterial excitement, and from a morbid stricture of the vessels of the skin. The perspiration being checked, the heat of the body is increased, with the general uneasiness of the system.

Emetics operate by diminishing action, and inducing general relaxation.

In *Dysentery and Diarrhœa*—They are useful not only for their evacuant operation, but also from their diaphoretic—Intimate connection between the skin and alimentary canal—In the diseases of the latter, we attempt revulsion by renewing the secretions by the surface—Utility of this practice confirmed by many authorities.

In *Dyspepsia*, they are useful by removing the morbid contents of the stomach, and changing the character of its secretions—They are more useful in removing the burning pain in the epigastrium, and freeing the stomach of its acid secretions, than all the antacids which can be employed—Some caution should be observed in their use.

3. *Emetics emulge the Biliary ducts*, and promote the *Biliary secretion*.

They become useful in obstinate *Constipation* of the bowels, unattended with Inflammation—They promote the biliary secretion, by which the bowels are stimulated to the discharge of their contents—while by their febrifuge and relaxing operation, they remove the Fever, and the constriction, which constitute the most dangerous, as well as distressing symptoms of the disease. Several cases related of persons subject to attacks of obstinate constipation being relieved by this course, after mercurials and other remedies had been employed without success—Not to be used indiscriminately—Constipation of the bowels attendant upon Intestinal Inflammation, and very difficult to overcome—The causes of this extreme difficulty.

Emetics act as *Expectorant* and *Revulsive remedies*.

In *Pneumonia Notha*—When the congestive state of the lungs exists in a high degree, Emetics in repeated, but small doses, are more useful than any remedies we can employ. They equalize the circulation—To such a degree does this congestion exist, that Dr. Rush has called it an apoplexy of the Lungs.

In *Typhus Pneumonia*.

In *Asthma*—given before the formation of the paroxysm they very often suspend the attack—after the disease is formed, full and free vomiting does much to effect the solution, and bestow relief. Phenomena attendant on this disease—Emetics appear to exert a centrifugal power—The concussion the system undergoes by the action of vomiting drives the blood into the remoter parts of the body—by the nausea they produce, spasm is relaxed, and expectoration, by the rapid passage of the air in the lungs through the bronchiæ, is promoted.

In *Pertussis* or *whooping Cough*, they are effectual remedies in all stages of the disease—It mitigates one paroxysm, and suspends another—The emetics preferred.

In *Cynanche Trachealis* or *Croup*—Emetics are indispensable, and equally successful in the Inflammatory and spasmodic forms—They afford much relief to the symptoms, and they may be repeated during the whole course of the disease, whenever from increased excitement—or when an increase of the secretion of the larynx and bronchia, any aggravation of the symptoms is experienced—The stomach not always susceptible to their action—by what means it is made so.

In the *Anginose affections*—sore throat—of great utility—Well adapted to the commencement of these diseases—more benefit from their use than from any other species of evacuant—These diseases intimately connected with the disordered condition of the stomach—other diseases having a similar connection.

In *Cynanche Maligna*.

In *Cynanche Laryngæa*—C. Suffocativa—Pseudo-membranous Laryngitis.

One of the most distressing forms of Anginose disease, which you will ever witness, not only from the sufferings of the patient, but the great mortality which attends it, Emetics are highly beneficial—The sufferings of the patient compared to a pack thread around the trachea, and this gradually tightened, until suffocation takes place—Dr. Armstrong's testimony in favor of their utility. Such the sufferings and the mortality of these cases, that the propriety of an artificial opening into the trachea strenuously recommended by some practitioners.

Emetics in the diseases of the Head have been thought beneficial.

The sick headaches of the studious and sedentary.

In an anomalous species of headache, occurring after blows upon the head, they afford much relief.

A case related of a severe blow upon the head in a rencontre, with the effects, and the relief afforded by emetics. The brain supports the operation of emetics under certain circumstances without injury—In the Apoplectic state of intoxication, they effect much in restoring the patient to his senses—also in the excited state which precedes collapse.

In *Apoplexy*—used with caution.

In *Idiopathic Apoplexy* depending upon general fulness of the system, of the vessels of the brain, or rupture of its blood vessels, they are forbidden—But when dependent upon the condition of the stomach, resorted to with advantage—When it succeeds to a debauch—to a full meal—they are useful—but to be preceded by venesection—apoplexy frequently arising from the latter causes.

In *Epilepsy*—of great utility when connected with the derangement of the stomach and bowels. This connection rendered probable by the circumstances of its recurrence—it being observed to make its attacks in epileptics, upon any irregularity in diet—to occur among children who are much indulged—and that its attacks are seldom renewed without either an habitual indulgence in eating, or a neglect of necessary exercise—Utility of emetics before the recurrence of the paroxysm, when this is indicated by symptoms.

In the *Convulsive diseases of Children*—Partake of the character of epilepsy—These affections always alarming, and particularly in those of tender years—The causes various—dentition—a consequence of Febrile excitement—worms—irritating substances in the stomach and intestines—Evacuants highly necessary when originating in the latter causes—Emetics of a mild character, followed by liberal doses of castor oil. The practice usually pursued in these cases, much to be deprecated.

The practice recommended :

In *Mania*—In acute states of the disease as indicated by great loquaciousness, flushed cheeks—wild and inflamed eyes—emetics by increasing the determination to the brain, prohibited.

In *Chronic Mania*, and in *Melancholia*—employed as a chronic remedy. The stomach generally torpid, and requiring active doses.

In *Mania à Potu*—Utility of these evacuants from the gastric origin of the disease—This inferred from the nature of the substances ejected from the stomach—the appearances on dissection, and the effects which follow their operation.

The subjects of this disease :

The treatment which has at different times been pursued—generally stimulating—but the cure tedious and protracted. The late Dr. Klapp, from observing the effects of accidental vomiting, was induced to make trial of emetics, and much success followed their use—Patients speedily tranquillized under this practice.

Effects of vomiting—the removal of thick, viscid, and glairy matter, a removal of the usual tremor, the pulse becoming fuller and less frequent, and the patient falling into a sound sleep, from which he commonly awoke, restored to reason and himself—Stimulants necessary to confirm the cure. The stomach in this disease loses its susceptibility to the action of medicines, insomuch that large doses of an active character are required.

In constitutions much impaired by long indulgence, they would be prostrated under this practice, and it must not be resorted to in all cases. When, however, the strength of the pulse, and the vigor of the constitution will admit of it, its effects will be found extremely satisfactory.

In *Hæmorrhages*—Emetics have been employed.

In *Hæmoptysis*, the practice cannot be considered safe—and hæmorrhages from other organs, are more effectually checked by other remedies.

In some local diseases—The state of nausea, with the diminished action of the heart and arteries, and the muscular relaxation which precedes the operation of emetics, would entitle them to some consideration in *Obstinate Dislocations*.

The practice to be pursued in these cases.

They have also been employed in *Hernia Humoralis*, and in the suppurative stage of Bubo.

They should be used with caution during the latter months of pregnancy, and when prolapsus uteri exists.

PARTICULAR EMETICS.

THE class divided into Vegetable and Mineral—Vegetable substances will be first considered, and they will be arranged according to the Natural system in Families. This arrangement holds out many advantages over the Linnean or Artificial—since it informs the medical inquirer not only of the Botanical affinities of the plants, but also supplies him with a knowledge of their properties and qualities. This acquaintance with the properties of even one plant of any order, enables him to form some idea of the remedial value of all the other plants in the same order, and if needful, to substitute upon fixed principles, any one of them, for that which is most usually employed.

The first article of which I shall treat, is from

The *Family Rubiaceæ—Calycocca Ipecacuanha*—Natural History—For a long time the natural history of this plant was involved in much doubt and obscurity. The characters were undetermined 150 years after its properties were known. They were not satisfactorily ascertained, until Prof. Brotero read a Monograph on this subject, before the Linnean Society, in 1801, accompanied with an engraving of the plant—Several distinguished Botanists having fallen into much error on this subject—Then ascertained to be the root of the above plant.

Botanical Description—

Root is perennial—length, 2 to 4 inches; breadth, 2 to 3 lines.

Color brown without, white within, marked by numerous prominent unequal rings.

Taste acrid and bitter.

Smell feeble.

Stem shrubby and creeping, giving out roots at the joints.

Leaves, 4 to 8—situated near the summit of the stem, opposite—length, 3 to 4 inches; breadth, 1 to 2—color, deep green.

Flowers, aggregate, in a solitary head—peduncles terminal, and rather drooping.

Habitat—moist and shady places—in the woods of Peru, Pernambuco, Brazil.

Several varieties of the roots to be observed in the shops—the ash, or grey, and the brown.

These varieties are furnished from the same plant—The differences depending upon the soil in which it grows—season of the year in which it is collected.

The root is composed of a cortical and medullary portion—the former being most active.

Medical History.—Although the properties of this article were well known to the inhabitants of South America, it was not introduced into Europe until about the middle of the 16th century—when Helvetius, under the patronage of Louis XIV., brought it into notice, and was rewarded handsomely for the benefits conferred by its employment.

Chemical History.—From analysis, it contains—

Gum.

Starch.

Extractive matter.

Oily matter, highly acrimonious, of a penetrating odor, and pungent taste, which does not occasion vomiting.

Emetine or the Emetic principle—When first prepared it is in the form of scales, of a reddish, brown color.

Sensible properties—Odor moderate—taste slightly bitter, acrid, not nauseous.

Solvents of Emetine.

Water and Acetic Acid.

Analysis of Emetine.

Carbon, Oxygen, Hydrogen and Nitrogen—Obtained in the largest quantity from the cortical portion of the root.

Preparation of Emetine.

The powdered Ipecac is treated with ether, in order to dissolve the fatty, odorous matter of the Ipecac—and when the solvent has ceased to act, the powdered substance is itself exhausted by means of alcohol. The alcoholic tincture is then evaporated in a sand bath, and the extract dissolved in cold water, when it abandons some wax and a little remaining fatty matter. It remains now only to macerate it with some carbonate of magnesia, which deprives it of the gallic acid, and then to re-dissolve in alcohol, and evaporate to dryness.

Operation of Emetine.—More active than Ipecac, and possesses fewer disagreeable qualities—proposed as a substitute, on account of its more pleasant taste, its small bulk, and ready solubility. In the human subject, 4 grs. in two doses, given at an interval of 15 minutes, produces full vomiting, followed by a marked disposition to sleep—Not much employed, as its operation on the stomach is apt to be more violent and continued than Ipecac itself. The application of Emetine the same as Ipecac, given in divided doses.

Solvents of Ipecac.—They are numerous—water, vinegar, wine, alcohol—dissolve its active matter—active matter of a volatile nature, and by boiling it is driven off.

With wine is formed the vinous tincture of the shops, of much value in the diseases of children.

The strength of the powder is much impaired by exposure to light and air.

Application of Ipecacuanha to Diseases.

Most important of the vegetable emetics—being mild, prompt, and efficacious in its operation—Not so active as the tartarised antimony, nor so speedy as the sulphate of zinc.

Adapted to a great variety of cases, and produces effects not obtained by other emetics. Its operation in general confined to the stomach, without having its action extended to the duodenum—cleanses the stomach of impurities without debilitating the patient. To the diseases

of children it is well adapted. The activity of this article is proportioned to the dose, though in a less degree than other emetics—Being bulky and partially insoluble, much of the powder is rejected with the contents of the stomach—admits of accumulation without having its action increased.

Powers increased by combination with tartarised antimony and with calomel—When very active emetics are required, we must have recourse to the mineral.

What changes does Ipecac. undergo in the stomach by which its emetic operation is promoted? It is decomposed in the stomach, its alimentary matters digested, and its medicinal principle set free.

Not only as an emetic is it used with advantage, but employed in a variety of diseases.

As a *sudorific*, has been employed in the diseases of the alimentary canal, and was originally introduced in the treatment of Dysentery—has not lost reputation by time. In 1686, introduced into practice in France, by Helvetius, under the patronage of Louis XIV., who proved its efficacy in the person of the Dauphin, and some of the gentlemen of the court.

In this disease after the contents of the stomach and bowels have been evacuated, it almost always produces good effects in small doses, either alone, or in combination with opium. It has been said to be particularly adapted to those cases where there is a great discharge of blood—but it is useful in every form, especially if there is much pain and tenesmus.

Of its *modus operandi*—it acts favorably by its diaphoretic operation, by which the fluids are determined to the surface—Effects of Ipecac. in combination with opium.

In *Diarrhoea* equally efficacious, employed in the same manner, with proper attention to regimen.

In *Dyspepsia*, highly recommended—In what manner given? In such doses as will not excite any painful sensations of nausea, but to produce a slight action upon the stomach, by which its viscid contents are separated and discharged. Thus given, acts as an alterative and gentle evacuant—improving the gastric and other secretions of the body.

Doses of the powder, $\frac{1}{4}$ to $\frac{1}{2}$ gr.; or

Tincture, viii. to x. m. two or three

times a day, in a little water.

In *Hæmorrhages*, this article has been employed.

In *Hæmoptysis* in nauseating doses, taking care that vomiting be not excited, otherwise bad consequences would be likely to ensue.

In *Uterine Hæmorrhage*, also exhibits good effects—Its *modus operandi*—exciting nausea—diminishing the action of the heart and arteries, lessening the impetus of the blood—To this may we add, equalizing the circulation, and exciting a discharge from the cutaneous vessels—given in small doses.

In *Catarrhal and Pneumonic disorders*—Useful by the action it exerts upon the mucous membrane of the bronchia and fauces—Its action in these cases diversified, and seemingly of an opposite nature—promoting expectoration in cases where the mucous membrane is in-

flamed and dry, and likewise serving to restrain the secretion when it is inordinate and excessive.

In the same diseases occurring in Children—No diseases so much benefited by frequent vomiting, and no article so efficacious, and so innocent—Their use not limited to a single emetic, or to the beginning of the disease. They must be repeated frequently two or three times a day until relief is afforded—Small doses very efficacious for this purpose. When a decided impression is made upon the disease, as evinced by the greater freedom in breathing, the improved countenance, the developed pulse, and the increased discharges from the surface, the doses are lessened, or the intervals increased.

In Asthma, given to the extent of vomiting, it affords relief—Relief is afforded by the mechanical operation of vomiting, expelling the mucous collected in the bronchia and trachea—thereby promoting expectoration—removing the congestion of the lungs—enlarging the capacity of the thorax.

Ipecac. given in doses of v. grs. every morning in the intervals of the paroxysm, to effect a permanent cure. The author has pursued this practice in smaller doses night and morning, with the effect of moderating the paroxysms, and enabling the patient to resume laborious duties.

Combinations of Ipecac. with opium and a portion of the sulphate of potash, forms the compound, termed Dover's powder.

United with purgative medicines in small doses, gives to them greater activity.

Combined with calomel in many cases with great advantage.

Incompatible substances—All vegetable astringents—as infusions of galls, green tea, vegetable acids, as the acetic.

Action of gallic acid upon Emetine—contracts with it an intimate union, and takes from it its emetic property.

Forms of Exhibition—Powder, tincture, infusion—The powder the most energetic—x. to xxx. grs. as an emetic; i. to ii. grs. as diaphoretic; $\frac{1}{4}$ to $\frac{1}{2}$ gr. as alterative and expectorant.

Tinctures—x. m. to 3 i. as a dose.

Infusion—℞. Powdered Ipecac. 3 ss.

Boiling water, ℥ iv.—dose 3 ii. to 3 ss.

Repeated as often as required, until the emetic operation takes place—Much used in this form for children, and is commonly termed hippo tea.

Useful as a counter-irritant.

Applied in the form of liniment, it produces an eruption of minute vesicles, on an inflamed base, in from 36 to 48 hours, which fade away in 3 or 4 days—prepared as follows :

℞. Ipecacuanha in fine powder,	-	-	-	3 ss.
Lard,	-	-	-	3 ii.
Olive oil,	-	-	-	3 iss. m.

A fourth to be rubbed well into the part it is desired to irritate, 3 or 4 times a day.

GENERAL REMARKS UPON THE DOSES OF MEDICINES.

THAT large and small doses of medicines are merely relative terms, and should never be understood as denoting absolute quantities—for for what would prove a large dose in one person, might prove trifling in another.

The general rule of conduct ought to be derived from the sensible effect of our practice.

Every dose of medicine, however large, is too small, if it stop short of the usual sensible operation on the constitution.

This is to be the rule in the use of medicines—the system must be placed fully under their influence, and when this has been done without effect, the remedies must be changed for others. Were this general rule more attended to, we should not so often complain of the inertness of our means, or the obstinacy of diseases. Disease and debility are kept up by what is called cautious practice—Practice which is regulated rather by the quantity of the prescribed medicines, than by the effects produced.

Adulterations of Medicines.

Practised to a considerable extent, and it will be my duty to expose them on all occasions—Few articles more frequently than the present—Of the various substances which have been sold for Ipecac., I shall merely mention a few.

The roots of the *Gillenia Trifoliata*, or Indian physic, the *Euphorbia Ipecacuanha*, or *Ipecacuanha* sponge—and the *Phytolacca Decandria*, or Pokeberry root, have all been sold for this article. The roots of *Sarsaparilla* have been powdered, and combined with Tartarised Antimony in imitation of Ipecac.

From the frequency of adulterations, it is not advisable to purchase a large quantity of any medicinal substance in powder—and as frauds are committed in a manner to elude detection, would advise, when practicable, to procure as many of your medicines in the root as is possible—When this is not practicable, to seek out a responsible apothecary, and to pay the best prices for your medicines.

Of adulterations of other articles, I shall give details when they come under consideration.

Physicians cannot be too sedulous on this subject—for without it, their honest endeavors will be thwarted by the substitution of some adulterated compound, in the place of the pure article which alone can amend and heal.

Will on all occasions point out the frauds committed with medicines, and by presenting the best specimens, so familiarize you with their sensible properties, as to enable you to discover these impositions.

INDIGENOUS EMETICS, SUBSTITUTES FOR IPECACUANHA.

FAMILY *Rosaceæ*—*Spiraea Trifoliata*, vel *Gillenia T.*—Indian physic—Grows plentifully in every section of the United States—The root the part used, though the stem and leaves may be employed. Description of the plant and root.

Root composed of a cortex or bark, and a ligneous portion—The former is most active, though the ligneous portion is not without activity.

Root administered in the form of powder, when it will prove a certain and manageable emetic, at the same time safe in its operation—In mild cases requiring the employment of Ipecacuanha, it may with advantage be substituted for it—Employed in the same diseases.

The dose of the *Gillenia* is xxx. to xl. grs., which gives to Ipecac. a decided superiority, the bulk being a great inconvenience—This objection obviated by combining with it one or two grs. of Tartarised Antimony—Used in the adulteration of Ipecacuanha.

Family *Euphorbiaceæ*—*Euphorbia Ipecacuanha*—Ipecac. Spurge.

Found in most parts of our country—the root the part used, and was supposed to furnish the official Ipecacuanha.

The general character of the *Euphorbiæ*—all remarkable for their activity, and abounding with a milky juice.

Description of the *Euphorbia Ipecac.*

The root an active emetic, the most active of the vegetable emetics enumerated, differing from them in having its action extended to the bowels, and operating as a cathartic with considerable energy. The testimony of Drs. Barton and Bigelow in its favor. It differs from Ipecac. in not admitting of a frequent repetition of the doses, nor of accumulation, as violent effects might ensue. Dose ʒi. to ʒss.

Euphorbia Corollata.—Description of the plant and root.

The root employed, and is in its operation and effects allied to the preceding, often exerting a cathartic action. Dose ʒi. to ʒss.

In smaller doses, as ii. to iii. grs., it acts as a diaphoretic, combined with opium, or the antimonials.

In concluding these articles, I would recommend them to physicians practising in the country, little doubting that they would be found valuable, and good substitutes for Ipecacuanha.

There are a variety of other plants that may be used as emetics—Their enumeration will be sufficient, and their further acquaintance can be extended hereafter. They are as follows :—*Sanguinaria Canadensis*, or blood root; *Aralia Spinosa*, or Prickly Ash; *Eupatorium Perfoliatum*, or Thoroughwort; *Stylingia Sylvatica*, Queen's Delight; *Erythronium*, or snake leaf; *Phytolacca Decandra*, Poke Root; *Lobelia Inflata*. Indian Tobacco.

Upon this last, as much has been said of its virtues, a few remarks may be made.

Family *Campanulaceæ*—*Lobelia Inflata*—Description of the plant. It is a biennial, and found growing in most parts of the United

States. Its properties are various—being Emetic, Diaphoretic, Expectorant, and in some degree Narcotic.

Sensible properties—To the taste it is acrid and pungent, followed by a sensation of roughness in the throat. This impression being stimulating, excites a copious secretion of salivary and mucous fluids, with hawking and expectoration—Effect upon the stomach—nausea produced, and in large doses, vomiting.

Character as an emetic—No peculiarity of operation, except being pungent and irritating—violent effects sometimes follow its use—Becomes, therefore, exceptionable, and other articles preferred.

Very useful in *Asthmatic* affections from its expectorant and emetic operation—Much pleased with its effects after a variety of other remedies had been unavailingly employed—Employed in combination with other Expectorants, as in the following formula :

R. Tinct. Lobelia.

Compound Syrup of Squills,

Simple Syrup of Squills—

ʒii. to ʒiii. given every 10 minutes during the paroxysm with a little water, until relief is afforded—and in the intervals of the paroxysms, two or three times a day.

In other diseases of the Thorax—as *Catarrh*, *Pertussis*, *Cynanche Trachealis*, and other pectoral diseases.

Forms of exhibition—Powder—dose from ʒi. to ʒi. as an emetic.

Tincture—dose ʒi. to ʒss. as an emetic, repeated every 10 or 15 minutes until it operates—For its expectorant operation every hour or two.

The Infusion is rarely employed—With sugar or treacle, a syrup may be formed, which may be advantageously employed in the catarrhal affections of children, and in threatened croup. This preparation will be found more active than squills, and more readily taken.

Family *Solanaceæ*—*Nicotiana Tabacum*, or Tobacco—naturalized.

Description of the plant.

Natural History—Was not known in Europe until after the discovery of America, and was first imported about the year 1560, as some say, by Sir F. Drake.

Chemical analysis—

Besides several principles, it contains a peculiar proximate one, upon which the properties of the plant depend. This is the volatile oil of tobacco, or nicotine.

Properties—Taste acrid, smell peculiar to tobacco—colorless—In it resides the active principle of tobacco—It is of a volatile nature, and obtained by distillation from the leaves—Poisonous—Experiments of Mr. Brodie.

Medicinal properties—very diversified—being narcotic, errhine, sialagogue, purgative, as well as emetic. The latter very decided, and has been known to produce vomiting, after other articles had failed. Useful to evacuate the stomach after poisons had been taken, and has been employed externally for this purpose—and in *Cynanche Trachealis* after other emetics had been unavailing.

Employed in the form of Enema in obstinate constipation of the bowels, and in strangulated hernia—Employed also in the same manner in the treatment of Tetanus.

Dr. O'Bierne's practice—a strong infusion injected by means of a flexible tube into the colon. This practice adopted in 20 cases, eleven of which recovered. The smoke of tobacco employed in the same manner.

United with cerate in fine powder, has been employed for its relaxing operation in *Spasmodic diseases*—as Cynanche Traachealis, applied in the form of plaster to the sternum.

Poisonous effects more likely to occur in the form of Enema, than as an emetic—Gallic acid, a counter agent, unites with the nicotina, and renders it inert. To obtain this acid, prepare an infusion of galls, green tea, or other astringent.

Family *Liliacæ*—*Scilla Maritima*, or Squills—Naturalized.

Description of the plant—root bulbous, and increases much in size—composed of laminæ or scales, the external being brown, internal white.

Sensible properties—No odor—Taste bitter and acrid—By drying looses much of its acrimony, but still a very active medicine.

Analysis of Squills—

Scillatin the essentially active principle—Properties—acrid and bitter—white, transparent, of a resinous fracture, deliquescent—soluble.

Medical uses—The root of squill has been long known in medicine under the mystic name of Eye of Typhon—Its properties numerous and diversified, being Emetic and Purgative—Expectorant, Diuretic.

Employed in children for its emetic and expectorant operation, and for their diseases it is much and advantageously resorted to. Given to relieve in them troublesome chronic cough—to promote expectoration in hooping cough—in croup.

Usefully combined in adults with other articles in the treatment of chronic coughs, colds, &c., as in the following formula :

R. Gum Opium, gr. $\frac{1}{4}$
 . Powdered Ipecac., gr. $\frac{1}{2}$
 Powdered Squills, gr. ii.

Syrup as much as is sufficient—make a pill.

To be repeated every 3 or 4 hours, or oftener, if necessary.

Squills yields its active properties to several menstrua—The preparations are, therefore, numerous. They are—

Tincture of Squills,	Syrup of Squills,
Vinegar of Squills,	Compound Syrup of Squills,
Oxymel of Squills,	Infusion of Squills.

Dose of the powder, 8 to 10 grs. as an emetic.

Tinctures—3i. to ʒss.

In smaller doses of the powder, its diuretic properties are obtained—referred to under the head of Diuretics.

Family *Crucifera*, *Semina Sinapi*—Mustard seed.

The ground mustard given in the form of a weak infusion in the proportion of ʒii. of the flour, or fresh ground seed, in a half pint of water, acts promptly as an emetic.

It was much employed as an emetic in the early treatment of Asiatic

cholera, and often with advantage. It has the advantage of leaving the stomach and system in a less depressed condition, than it is after the use of other emetics.

MINERAL EMETICS.

The most valuable are among the *Preparations of Antimony*.

Natural History of Antimony.—It exists in nature as a Sulphuret of Antimony, and is of a bluish color—a shining surface, and a striated texture—Obtained from mines in Hungary, Germany, &c.—Tradition respecting the early use of this article—Medical History—introduced into the practice of medicine with great difficulty.

Uses of this article revived by Paracelsus, and it was employed by him as powerful and efficacious remedy—alternately received and rejected—Finally established in regular practice, by the labors of Hoffman, Cullen, and Fordyce.

Antimony, in its natural state, is not active, unless it meets with an acid in the stomach. To become active, it is submitted to a variety of processes by the chemist. These preparations, though greatly multiplied, are characterised by an uniformity of operation. I will only glance at the most important of these preparations.

The means used to give activity to the Sulphuret of Antimony, are—

(a.) By trituration and the action of heat and air.

None of these preparations retained in practice.

By the action of the alkalies.

1. Kermes Mineral, or Sulphuretted Hydroguret of Antimony, or sub-Hydro-sulphate of Antimony of the French—Preparation.

2. Golden Sulphur of Antimony, or Sulphuretted sub-Hydro-sulphate of Antimony—Preparation.

These preparations coincide nearly in their action on the system—The only difference, the latter containing more sulphur, is less active.

Medical properties and uses—Their action is upon the coats of the stomach, producing nausea, and promoting the secretions of the skin, lungs, and trachea.

Their action extended to the bowels, producing Catharsis.

Useful in all *Inflammatory* affections of the lungs—in pneumonia—catarrhs, acute and chronic.

They can be recommended in these cases, and are useful by diminishing excitement, determining to the surface, allaying thereby the irritation which excites and provokes coughing.

These preparations are also useful in Febrile affections, and may very well be substituted for the Pulvis Antimonialis, being not only more uniform in their operation, but decidedly more energetic.

Dose as an emetic, - - - - vi. to x. grs.

As a Diaphoretic, - - - - ii. to iii. grs.,

or used in the form of Pectoral mixture.

R. Kermes Mineral, - - - - ʒss. to ʒii.

Mucilage Gum Arab., - - - - ʒ vii., mix.

Dose— $\frac{3}{4}$ ss. every second or third hour.

The nausea excited diminishes action and excites perspiration—while the pulmonary exhalation being increased, expectoration is promoted.

Treat all pulmonary affections, even mild ones, as important, and you will less seldom err from too much than too little caution. Recollect that most diseases commence with irritation of function, when they are curable; and pass often rapidly into derangement of structure, when they are incurable.

3. By the action of Nitrate of Potash upon Antimony—None of these preparations are retained—In their place we have the Pulvis Antimonialis.

Preparation—It is prepared by exposing the sulphuret of antimony, and hartshorn shavings, to a white heat for a certain time—The animal matter and the sulphur are driven off, leaving an oxyde of antimony with phosphate of lime, which, combined together, form the Pulvis Antimonialis of the shops, or the proto-oxyde of antimony with phosphate of lime.

These are the principal preparations with the Sulphuret of Antimony.

With the oxydes of antimony united with acids, so as to form salts, there have been many preparations in use—but few are employed at the present time. The most important is the Emetic Tartar—a compound of protoxyd of antimony, tartaric acid, and potash.

Preparation—It is obtained by boiling bi-tartrate of potash with protoxyd of antimony, in a glass vessel, for a quarter of an hour, and setting the liquor by to cool. In this process the excess of tartaric acid, in the bi-tartrate, is saturated by the protoxyd of antimony, and by evaporation, and crystallization, a triple salt, Tartrate of antimony and potash, is obtained.

Sensible properties:

Color white.

Taste styptic and metallic.

Soluble in water—requisite dose small.

Character as an Emetic—

Prompt, certain, and energetic.

Excites the stomach into forcible and long continued efforts to discharge its contents—This action extended to the duodenum—The operation of antimony is extended to the alimentary canal, and hence it proves considerably purgative. This effect taking place, either when the dose has been greater than necessary, merely to produce vomiting, or when the stomach has escaped the action of this powerful medicine—Antimony appears to promote almost all the excretions, and to quicken and stimulate the action of the absorbent vessels.

From this extended action upon the system, it is often preferred to other emetics—and by this extended operation, does much to break up the morbid associations which are formed in disease.

Employed in the commencement of the Continued Fevers of our climate, and does much to effect a crisis at the onset.

In Intermittent, Remittent, and Bilious remittents of our climate, it is often properly resorted to in the early stages.

The object of the practitioner when called in the early stages of fever, is to arrest the febrile paroxysm in its commencement. This is done by the use of such means as produce a considerable commotion or shock in the system—and among these means emetics have held a high rank. They possess this advantage, that they may be employed at any period of the paroxysm.

If during the *chill*, free vomiting is excited, the *cold fit* is often speedily terminated, and a general glow, accompanied with a degree of perspiration, is produced.

If delayed until the *hot fit* has commenced, its operation is frequently followed by free perspiration, and relief to many of the concomitant symptoms.

Should it fail in bringing about a solution of the fever, the antimonial may be continued during its progress, in minute doses.

It has been a question, whether they should be carried to the degree of producing nausea.

By some physicians it is contended, that it should be carried to this extent.

While by others this practice has been condemned, and it has been said to produce the most decided advantages, when it produces the least sensible effects upon the stomach.

The sensation of nausea cannot be long supported, and if the antimonials produce good effects without being carried to this extent, it will be removing one of the strongest objections to their use. Their favorable operation in Febrile and Inflammatory diseases seems to depend upon their power to moderate the action of the heart and arteries, and upon the exercise of this power, their good effects seem to depend. To such an extent is it exercised, that the term *sedative* and *febrifuge* has been applied to them.

Upon this principle has this medicine been employed in other diseases, particularly the Phlegmasiæ.

In *Pneumonia*, after proper depletion, given in small doses, it will be found efficacious in relieving pain, increasing the freedom of respiration, exciting perspiration, and subduing the remaining inflammatory symptoms, more effectually than venæsection, or the usual depleting remedies.

In *Catarrhs*—chronic coughs, employed at a proper period, no article exercises a more salutary influence. By it an impression is made upon the disease, infinitely to be preferred to the mucilaginous drinks, cough mixtures, anodynes, &c., which are so often resorted to, and which are frequently so unavailing. These means allay present suffering, while the morbid action still progresses. The tartarised antimony strikes at the root of the evil.

In *Phthisis Pulmonalis*, administered in the same manner, advantage is often derived—and I have known the cough allayed, sleep induced, and the distresses of the patient quieted, when anodynes disagreed or failed.

In *Rheumatism*, either chronic or acute.

In *Cynanche Tonsillaris*—*Ophthalmia*—in *Chronic Hepatitis*—and a variety of other inflammatory diseases.

The usual strength of the solution is half a grain of the Tart. antimony to the ounce of water, or 2 grs. to six ounces of water—the dose $\mathfrak{z}\text{ii.}$ to $\mathfrak{z}\text{ss.}$ every 2 or 3 hours, or at longer intervals if necessary.

Such is the practice usually pursued in the employment of this article. A new course has within late years been recommended in its administration. This practice has been termed the *counter stimulant*, or the *Italian system*, of which Rasori is the founder. In this practice, the administration of medicines in very large doses has been advocated and practised. The effects of the free employment of the tartarised antimony, are as follows :

Under the free administration of this article, the stomach and intestinal canal are affected as by its ordinary use, viz: vomiting is excited several times, and afterwards evacuations from the bowels. In two hours, if 3 or 4 grs. more are given, the discharges from the bowels are not repeated, or very sparingly so.

At the expiration of the same period, the same dose is repeated until $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ii.}$ are taken in the 24 hours. After the first operation, the discharges are not repeated, but the influence of the medicine is exerted upon the pulse—the skin—pain and inflammatory action are abated—The stomach is so little disturbed, that the digestive process is not interrupted—the desire for food and the sense of hunger are not removed—A tolerance for the medicine is established—The medicine is thus continued from day to day.

On the 4th or 5th day, the stomach becomes intolerant of the medicine—it is rejected—nausea succeeds—vomiting—loss of appetite—and the remedy can no longer be persisted in. Such changes are, in the meantime, induced in the system, that the disease for which it is given, has sensibly declined, or is entirely removed.

This practice does not seem so very objectionable as might be supposed. Where the excitement is great, larger doses are required to produce impressions, and the practice of Dr. Cartwright, in the Pneumonia biliosa, of Natchez, may be cited—In ordinary cases, smaller doses are sufficient.

Other medicines administered in the same manner.

The diseases in which tart. antimony is so freely employed are Pleuritis, Pneumonia, Rheumatism—the intestinal canal being in a sound state. If inflamed or irritable, the effect would probably be very different—it might bring on an unmanageable irritation of the stomach, or a diarrhœa difficult to control, and be productive of speedy prostration.

Tartarised antimony has been resorted to in small doses, in *chronic affections of the skin*, and in *superficial ulcerations*, so as to affect the bowels, though to produce any decisive effects, it must be long and perseveringly employed.

In *Herpes*, *Lepra*, also found useful—May be given alone, or combined with some other article, which has a determination to the surface, as guaiacum, sarsaparilla, &c.

Applied to the *surface of the body* in the form of ointment, an action is exerted somewhat specific—a vesiculo pustular eruption is produced, not unlike the variolous pustules, which, upon breaking, discharges a good deal of matter, and a small ulcer succeeds, which is slow in heal-

ing—Thus a powerful stimulant action is excited, which has been taken advantage of in curing formidable and deep seated affections. The diseases in which it was most successfully used, were Mania, Hypochondriasis, Pulmonary Affections, Rheumatism, Hooping Cough.

The ointment to be applied in the neighborhood of the disease—In recent cases, the first or second application has removed the disease—In chronic cases, the frictions should be continued longer—When the eruption makes its appearance, the ointment must be discontinued until the soreness is removed, when it may again be applied, with the effect of renewing the crop of pustules, and so on until a cure is effected.

The connection between Cutaneous eruptions and Internal diseases, has not escaped the observation of many physicians, and I may add, even the notice of unprofessional persons—Epilepsy, mania, delirium in fevers, phthisis pulmonalis, &c., have all been observed to be removed and excited by the recurrence or recession of cutaneous eruptions. The consent between the skin and lungs, is particularly manifested in the effects of repulsed itch, small pox, or measles, which seem to fall immediately upon the breast.

Manner of preparing the Ointment—

R. Tartarised Antimony, 3i.
Lard, - - - 3i.—To be well mixed.

A small portion to be applied by friction to the neighborhood of the part affected—The friction to be continued once or twice a day, for 2, 3, or 4 days, according to the sensibility of the patient's skin, when a crop of pustules takes place, with great relief to the symptoms.

The reason why greater relief is afforded by Tart. Ant. than by Cantharides, is, that it not only vesicates, but that it produces diseased action of the skin itself, by deeply deranging its structure, and the ulceration extending beneath its surface.

Of the Forms in which the Emet. Tart. is exhibited—

In solution, dissolved in warm or cold water.

Dose—ii. to iv. grs. in divided doses.

Antimonial Wine—

Prepared by dissolving Tart. Emetic, ʒii.
Warm Water, 3ii.
White Wine, 3viii.

An ounce contains grs. iv., and is a dose.

The dose for a child 3 or 4 months old, is x. to xv. m.—for an infant at the birth, i. to ii. drops.

In our employment of the antimonials in the diseases of children, we cannot be too cautious.

In preparing antimonial wine, we should use the salt in the state of crystals, as in this state it is purest.

Tartarised antimony may be administered in the form of Enema.

From the relaxation induced by this medicine upon the muscular fibres, it has been recommended in *obstinate* obstruction of the bowels, in bilious colic, and other spasmodic diseases. It is prepared as follows :

R. Antimony Tartarised, grs. viii. or x.
Water, 1 pint.

If it does not operate, it may be repeated in 30 minutes. Its use has been suggested in Tetanus.

Mistakes of a very alarming nature are sometimes made with this article—It has a resemblance to the bi-tartrate of potash, and hence becomes very obnoxious to carelessness. The treatment, when severe vomiting occurs, has been already referred to.

Should the article be retained, it will operate as a poison—and being absorbed into the system, it will be found that the lungs are disordered in the highest degree. They will be of an orange or violet color—to have lost their crackling feel—to be distended with blood—of a light texture, and in gangrenous condition. The mucous membrane of the stomach and alimentary canal, will be found distended with blood, and evidently inflamed in a *high degree*.

Sulphate of Copper—Obtained by evaporating waters which hold it in solution—Such waters found in copper mines, where the sulphuret of copper, by exposure to air and moisture, is converted into a sulphate. Produced artificially by calcining the native sulphuret, and exposing it in a humid state to the air.

Copper, in its metallic state, exerts but little action upon the system—a remarkable case in illustration. When poisoning occurs from the use of copper vessels, it proceeds from the want of cleanliness, by which salts are formed, viz : the carbonate and acetate of copper.

Characters of the Sulphate as an Emetic—

It is prompt and active—useful where Narcotics have been taken. In these cases, where the irritability of the stomach has been greatly impaired, and the patient nearly in a state of insensibility, it has produced instantaneous vomiting, given to the extent of xv. or xx. grs. dissolved in water.

Not much employed in general practice.

In *Cynanche Trachealis*, or croup—From the insensibility of the stomach to impressions, in some of the stages of this disease, it is a remedy well adapted to these cases, and may be resorted to after milder means have failed of producing emesis.

Recommended by a German practitioner as a remedy in this disease—employing venæsection, and administering in small doses every 2 hours. Where stridulous breathing exists in a high degree, an emetic of this substance is first administered, and then the same article in small doses during the disease, in conjunction with Tinct. of Digitalis—Much success, he says, attended this practice—not losing a patient during a period of ten years, notwithstanding this disease was often at its height when called.

Will not dwell upon this article, as it does not exert any very considerable curative intentions.

Sometimes its administration in the form of pill as an emetic is convenient.

Dose as an emetic is grs. vi.

In solution, it is useful in the formation of *Gargles* for the throat, when ulcerated.

Poisoning from the Salts of Copper.

The symptoms excited are the same as those produced by arsenic or corrosive sublimate—They are violent colic pains, vomiting and purging, the eructation of a matter containing verdigris—sometimes salivation, a small pulse and blueness about the eyes, jaundice, a copper taste in the mouth.

Morbid Appearances—

Signs of high inflammation, ulceration, and the contents of the stomach in the sac of the peritoneum—Antidotes—Albumen and Sugar. Their operation upon the salts of copper is, to reduce them to the state of an oxyde, and forming an insoluble compound with this oxyde.

Sulphate of Zinc is formed from the Sulphuret of Zinc—A native production, and found in mines in Hungary, England, &c.—It is obtained from it by exposure to air and moisture. By this operation the metal becomes oxidated, and the sulphur acidified, and by mutual action, the Sulphate of Zinc is formed, or it may be prepared by the direct union of its ingredients.

In its metallic state it exerts but little action upon the system.

Appearance of this salt—In white masses, grained like sugar, and spotted with yellow.

Taste—strong, styptic, metallic.

Sulphate of Zinc of commerce is not a pure article—contains Sulphate of Iron, and sometimes Sulphate of Copper—How purified.

As an Emetic, it is not much employed—chiefly had recourse to when the vegetable poisons have been taken—given in doses of $\mathfrak{z}\text{i}$. to $\mathfrak{z}\text{ss}$.

A great objection to this article is its extremely harsh and unpleasant taste.

It was much extolled by Dr. Moseley for its Emetic operation, who speaks of it in terms more of an Enthusiast, than an experienced practical physician. In these opinions very few coincide—so that, notwithstanding his authority, it is not often resorted to.

It formed the basis of a preparation called Moseley's Vitrolic Solution, which, combining astringent and diaphoretic properties, was highly commended in all the diseases of the Alimentary canal, viz: Chronic Dysentery, Diarrhoea, Colica Pictonum—also, by its Emetic and Diaphoretic operation in diseases of the Thorax—as Catarrhal Coughs, Hooping Cough, Phthisis Pulmonalis, in all of which it was recommended by him in the highest terms.

It is seldom or ever employed, though there is no reason why it should not be useful, from the reputed action of the medicine. Like many other medicines, it has lived its brief existence, and lies buried—to be revived at some future day.

In *Angina Pectoris* it has been recommended—especially when depending upon irritation of the cardiac nerves, and when it occurs in connection with a disordered condition of the Digestive organs. In this disease it is employed in small doses for its Tonic operation, in

union with opium. The disease in these cases partakes more of a spasmodic affection, and under these circumstances, relief is often afforded by its use.

In *Pertussis* and in *Asthma*, it has also been recommended, and from the relief afforded by emetics in these cases, it may be resorted to, but with little more benefit than any other article would furnish.

A brief consideration of the pathology of *Asthma*, would render the benefits afforded by Emetics more striking.

What are the immediate causes of an attack of *Asthma*?

1. Spasmodic affection of the muscular fibres of the bronchiæ.
2. A morbid thickening of the mucous membrane lining the bronchiæ, such as occurs in what is called cold in the head.

What the consequences of this state of the solids?

1. An obstruction to the free Ingress and Egress of air in respiration.
2. An obstruction existing, expectoration cannot be performed, or only with difficulty—The mucous retained, adds much to the embarrassment of the breathing.

3. The freedom of action in the lungs being interrupted, the blood circulates with difficulty, it accumulates in the lungs, and adds to the distress of the patient.

4. The functions of the lungs being imperfectly performed, hence the lividness of the lips, face, and of the ends of the fingers—the coldness of the surface.

The immediate cause of all this disturbance, is that state of the solids giving rise to spasms.

How do Emetics operate in relieving the patient?

By the nausea excited spasm is relaxed—the air in the lungs being variously agitated during the action of vomiting, expectoration is produced, and the fluids of the body by the diversion given to them, are directed from the internal to the external parts of the body—Thus the congestion of the lungs is relieved, and their functions better performed.

Chloride of Sodium—Common salt.

In the quantity of $\frac{3}{4}$ ss. to $\frac{3}{4}$ i. dissolved in water, often operates as an emetic—As an emetic in Cholera, preferred by practitioners to other emetics. The activity of the solution of salt is increased by the addition of a tea-spoonful of the flour of mustard.

The practice of Dr. Stokes, of New-Jersey, detailed—who, in sixteen well marked cases of the disease, succeeded in restoring all by this practice, except two treated with camphor, opium, brandy, external stimulants, frictions, &c.

DIVISION 2.

Medicines which irritate the Internal surface of the Alimentary Canal

CATHARTICS.

THE effects which follow the administration of a Cathartic. The effects described will vary according to the nature and activity of the Cathartic employed—sometimes much distress is excited, and at others little is felt.

In explanation of these effects, it will be perceived that they have their origin in the action of the Cathartic upon the surface of the intestinal canal, and that most of the phenomena are derived from the impression of these substances upon this surface—This impression not strictly local, but, extended to all parts of the system.

Cathartics, therefore, exercise a local and general action—Remarks upon each—Before proceeding to either, will take a *general view* of the structure of the Alimentary Canal, as it is from the consideration of its various functions, that we are made particularly sensible of the benefits conferred by these medicines.

Cursorry view of the structure of the Alimentary Canal.

The effects, therefore, or the physiological phenomena which follow the administration of a cathartic medicine, are, an increase of all the vital energies of the Alimentary Canal.

1. The capillary vessels which form a net-work, become more apparent, and distended with blood.

2. The serous exhalation is increased.

3. The mucous follicles become more active, and furnish, in a short time, a very abundant discharge.

3. The irritation is extended by the ducts which open into the duodenum to their respective glands, the liver and pancreas, and they are excited to pour out their secretions more freely.

4. The muscular fibres of the intestines are also stimulated, and the peristaltic motion increased, by which the contents of the bowels are quickly propelled and discharged.

Their utility as Evacuants, and in equalizing the circulation, made apparent—more especially so, when the character of diseases is duly considered—This consisting often in unequal excitement, or too great an accumulation of fluids in one part of the system, at the expense of another—The duty of the physician to correct this undue determination—Hence their value in diseases of the head, chest, and other parts of the system.

The Class divided into Laxatives and Purgatives—Remarks upon each.

Besides the differences which arise from different degrees of activity, they will present others, according to the part of the Alimentary Canal upon which their action is directed—This dependent upon the peculiarity of the stimulus, or upon the readiness with which it undergoes solution in the bowels.

Illustrated by examples of medicines, the action of which is exerted upon different parts of the Intestinal Canal.

Calomel has its action exerted upon the upper portion of the Intestinal Canal, and hence, by irritating this portion, has its action extended to the liver, giving rise to bilious vomiting, and evacuations—Gamboge operates upon the same part, hence it often acts as an emetic.

Jalap and other resinous Cathartics, act upon the small intestines.

Aloes, Hellebore, and Sulphur, principally upon the colon and rectum.

Cathartics differing in their degrees of activity, and also in acting upon different portions of the alimentary canal, it follows that the evacuations will also be different.

In some, bilious matter will predominate.

In others, serous discharges will be more abundant.

In others, an increased discharge from the mucous glands, and hence mucous discharges.

The terms applied to these evacuations are Cholagogues, Hydragogues, Phlegmagogues.

These terms have, for a very long time, been employed in medicine, and originated with the advocates of the Humoral Pathology.

They were not understood in the sense I have endeavored to explain—but that the medicines entered the system, and searched out fluids which were depraved—and which being brought into the intestines, were expelled from the system. The terms are applicable, though not in the sense formerly employed by the ancient Humoralists.

These remarks comprise what is necessary to be said, as to the local operation of Cathartics, and the physiological phenomena which ensue.

Let us consider the effect of their operation upon the system generally.

They are the result of this local irritation—The *pulse*, under their influence, is considerably affected—During and after the operation of a Cathartic, it is smaller and more frequent than in health—Under the influence of pain, commonly denominated cramp, it becomes unequal and intermittent.

The *secretions* are materially deranged—Some are increased, others are diminished.

The animal functions are much disturbed—muscular motion is impaired—the sensations appear vague and imperfect.

The intellectual functions are slow and difficult—The inclination to sleep is irresistible.

These symptoms, with others, as the thirst—the cramps, the feebleness of the function of perspiration, the disposition to sleep, are attributable to the excitement and irritation of the gastro-intestinal surface—These effects will be proportioned to the character of the article employed. When of a drastic and powerful nature, the healthy functions will be slow in being restored, or an enteritis may be produced, which will give rise to other phenomena. When the article is of a mild nature, the system soon returns to the healthy exercise of its functions—the secretions are renewed, the pulse improves in its character—the desire for nourishment is restored.

Cathartics then, it is obvious, are valuable, not only as depleting remedies, but by exciting new changes in the system at large.

Are there any precautions to be observed in their employment?

We acknowledge their utility in diseases attended with excitement.

Ought we to employ them in diseases attended with debility? We know that they increase the secretions by the bowels, and hurry off the chyle, and therefore should be used with caution, but they should not be rejected altogether—Because, by their use, the bowels are urged to expel their contents, by which their functions are in a degree restored; the appetite and digestion are, too, improved thereby, and the patient, so far from being weakened, is placed in a condition to be nourished and strengthened.

Again—in diseases of debility, and of long continuance, it is said that little food is taken, and therefore regular alvine discharges are not to be expected. In all diseases some nourishment is taken, which will contribute to the formation of feculent matter—but in Fevers, another supply is furnished from the abundant secretion of different organs, and the excrementitious matter poured into the intestines—Hence the necessity, under all circumstances, of attending to the condition of the bowels, since independently of solid matters being taken into the stomach, fæces are formed, which, from the heat of the body, become acrid and irritating, and add to the existing disease.

General objects accomplished by this Class of Medicines.

1. Their great value as evacuants.
2. They deplete the viscera by the secretions excited from the liver, pancreas, mucous glands, and exhalents.
3. They act powerfully in producing revulsion—The irritation excited gives increased activity to the vital energies of the part upon which the impression is made, according to the old principle *ubi irritatio, ibi fluxus*—Hence an important influence is exerted upon the head, chest, abdomen, &c.
4. The influence exerted upon the whole nervous system, through their impression upon the nerves of the intestines. To this, are we to attribute the actions excited in remote parts, the alterations which have taken place in the secretions, the renewal of action—the change, in short, which the whole system undergoes.

Particles of these medicines being absorbed, even when not operating upon the bowels, must exert an influence upon the organic structures.

5. From the combined action of all these operations, this class is entitled to be considered as *alterative* medicines of great value, and fully illustrates the great aid they afford in diseases of almost every description.

Rules for the administration of Cathartics.

1. Cathartic medicines should be exhibited late at night, or early in the morning, where circumstances are not very urgent. It would seem that during sleep the bowels are not so irritable, and consequently not so easily acted upon—while by suspending the influence of the imagination, it renders them less liable to be rejected.

2. In cases of Fever, where it is necessary to consult the quiet and ease of the patient, it is important that their exhibition should be so timed, that their effects may be expected during the day.

3. Cathartic medicines should be exhibited upon an empty stomach, as we prevent their being rejected, and secure a more easy and effectual operation.

4. To promote the action of this class of remedies, as well as to obviate griping, warm diluents are to be freely taken after the first discharges—as chicken water, gruel, tea, &c.

APPLICATION OF CATHARTICS TO DISEASES.

HARDLY a case of deranged health, in which they may not be employed with some advantage.

The reasons why they are so generally useful—The intestinal canal is subject to so many irregularities of combination and action—its sympathies are so numerous and extensive, its functions so various and complicated, that the necessity frequently recurs of attending to its state and condition. It is, I may say, the sewer of the system, into which all the useless, foreign, and putrescible materials are collected—into which the fluids of the body, after having served their offices, and the excretions of the several glands, are emptied—Becomes, therefore, much engaged in the production of disease, or instrumental in keeping up its activity.

In *Fevers* of every variety they are indicated.

They operate as evacuants, and remove the remote causes of these disease.

In these cases, the bowels are generally torpid—in consequence of which a state of fullness, restlessness, and anxiety are produced, which aggravate the symptoms—Cathartics relieve this state of the system—They are useful in every stage of fever.

In the *Incipient*, they frequently check its progress.

During the course of the Fever they relieve symptoms, often increasing the strength of the patient.

In *Intermittents* they are much used.

In *Remittents* they are equally useful, and more frequently necessary—They are employed daily to evacuate the bilious matter, and bring down the force of the disease.

In our highly *Bilious grades of Fever*, and in *Yellow Fever*, they are invaluable.

Not only in these Fevers is the utility of Cathartics established, but even in *Typhus*, or the weaker forms of Fever. Their importance will be obvious, by noticing the symptoms which precede their approach. They are, loss of appetite, thirst, sickness, white or loaded tongue, disagreeable taste of the mouth, and most commonly constipation of the bowels—To these, succeed languor, headache, debility, and inaptitude

of the usual mental and bodily exertions—inorbid affections of the surface of the body, of the sanguiferous system, and of the different secretions, soon succeed—to which, in the advanced stage, are added delirium, subsultus tendinum, and singultus.

The treatment most beneficial, is that directed to the condition of the bowels, and as their black and offensive contents are removed, the low delirium, tremor, and subsultus tendinum are abated—the tongue becomes moister and cleaner—the creeping pulse acquires a firmer beat.

In treating of this class of remedies, we have only endeavored to enforce the utility of these agents to remove some of the symptoms of Fever—This is only a part of the plan of treatment, and there is no remedy that can alone be depended upon—There is no one mode universally applicable.

In advocating the utility of Cathartics in Febrile diseases, it is proper to state to you, and even to admonish you, that in many instances they are abused, or injudiciously employed. The remarks that I can make, must of necessity be very limited—practical views will be fully unfolded to you from another quarter—to me, alone, belongs the Therapeutical applications of Medicines, and the cautions to be observed.

1. Cathartic Medicines, then, are abused, or injudiciously employed, when active, or drastic articles, are continued, after the stercoraceous and acrid secretions of the bowels are discharged—Under these circumstances, with the contents of the bowels, the mucous secretion, which lines and protects the tender surface of the internal membrane, has also been removed; and the continuance of active articles, can have no other effect than to wound and irritate this surface, to excite griping and distressing pains, followed by a frequent desire to evacuate the bowels—with small, thin, serous passages, attended with a painful and distressing tenesmus. The stercoraceous and offensive secretions from the bowels being removed, without subduing the disease—it will be proper to discontinue these medicines, and excite some other secretion into action. When further evacuations are required, it will be advisable to excite them *by milder preparations*, as they will most commonly be found better adapted to the condition of the vital powers, and fully capable of carrying off the secretions, which have been poured into the intestinal canal. I could depict to you the bad effects of a contrary practice, and have seen patients suffering under all the symptoms I have mentioned, the passages consisting of little else than thin, serous discharges, with flakes of mucus, floating in the fluid. The continuance of these medicines, under these circumstances, not only irritates the mucus surface to a considerable extent, but I will not go too far in stating, that instead of subduing, will be found to increase the fever. You would hardly credit me, were I to relate the extent to which I have known cathartic medicines pursued in febrile affections of an acute character. I have known from twenty to thirty evacuations excited from the bowels in twenty-four hours, not only from adults, but children. This practice is entirely wrong, it is absolutely destructive. You might almost question how such a number could be produced. The fact is undeniable, and it is adduced to show the pernicious extent to which these medicines are carried, and against which I wish to warn you. These sue-

cessive discharges are procured, not by two or three doses of active medicines, which are proper enough in the commencement of diseases, but by a continuance of the same medicine every two or three hours, for twenty-four, thirty-six, or forty-eight hours, and sometimes the whole course of the fever. However excited, whether by Calomel alone, or its combinations; whether Jalap and its combinations, or whether simply oleaginous, the practice is to be depreciated in the highest degree. I should be glad, if it were possible, to give you definite rules on this subject. I can only state to you what has usually been my course.

It is, when called to a patient laboring under acute disease, to remove, as much as possible, all apparent sources of irritation. If necessary, venesection is practised; if not, the condition of the alimentary canal, as affording many sources of irritation, and having a more extensive influence upon the system, than any other channel, is attended to. The stercoraceous and offensive contents of the bowels being removed, which is commonly done with half a dozen evacuations, with the continuance of the disease, attempt the renewal of some other secretion—the skin, or urinary organs, and combat symptoms as they arise. When the condition of the bowels requires attention, which will be in twenty-four, or thirty-six, or forty-eight hours, to excite discharges by the same medicines, if it can be borne, and if not, by a milder article, always keeping the same object in view, a renewal of secretion, or a change of secretion, and combating symptoms as they arise. The resources of the M. M. are quite sufficient in by far the greater number of cases, if we only apply them properly, judiciously, cautiously. You will hear various and contradictory opinions as to the means by which this is to be accomplished—listen to them all, and judge for yourselves. Having found a mixture of error, and truth, to exist in systems and doctrines, I take advantage of the fact, judge for myself, and pursue an eclectic course.

2. Drastic or irritating Cathartics are injudiciously, nay, improperly employed, in diseases attended with an inflammatory condition of the mucous membrane of the alimentary canal. When speaking of the physiological operation of these articles upon this surface, the remarks then made will render it unnecessary to enter into details—It is evident that they will exasperate all the symptoms—While on the contrary, from the milder articles, the most beneficial consequences must result.

It seems to me, that in a subject of such importance, it might be advisable to particularize some examples in Febrile diseases, in which the precautions I have mentioned should be observed, as well as the symptoms which lead to a knowledge of this inflammatory state.

Without entering into the disputed question, whether Febrile diseases originate in an inflamed condition of the mucous membrane of the alimentary canal or not, I shall only observe to you, that Febrile diseases are often attended with a considerable determination to the abdominal viscera, and among the organs effected, the stomach and intestinal canal, frequently participate largely in these determinations.

The symptoms which characterize this condition of these organs, are

nausea, irritable stomach, vomiting of fluids taken, pain upon pressure, costiveness. When to these are added redness of the tongue, either pervading the whole surface, or confined to the edges or tip, or when to this state, it is coated with a thick fur—when thirst exists, and the pulse ranges from ninety to a hundred pulsations in the minute, we may be assured that abdominal inflammation exists, and under these circumstances, active medicines of an emetic or cathartic character, will be improper. Depletion by the lancet, or leeches, should be preferred, until these symptoms are abated, fomentations to the abdomen, warm cloths, and the mildest medicines employed—calomel, for instance, followed by castor oil—Evacuation from the bowels being effected by this course, the utmost relief will be afforded, and the patient will have reason to rejoice in the prudence, judgment, and discrimination of his physician. A contrary practice will but subject him to much and severe uneasiness and distress.

Utility of *Cathartics in Inflammatory diseases*. The great utility of Cathartics is not only exhibited in removing offensive matters from the bowels, in depleting the chylopoietic viscera, and exciting a new and more healthy action; but by the irritation they excite upon the serous vessels, and the mucous follicles, a copious secretion takes place from the extensive surface of the alimentary canal, and they become important remedies as Evacuants to the system generally. Hence, their great value in the treatment of Inflammatory diseases, and in the diversity of cases, in which arterial excitement is to be moderated and reduced.

In affections of the *Lungs*—as Pleurisy, Peripneumony, the employment of Cathartics has been condemned by some practitioners, apparently upon theoretical grounds—yet it will be found that free evacuations from the bowels, conduce, like blood-letting, to diminish the general and local inflammatory action, and by a revulsive operation to determine from these organs.

In *Inflammation of the Peritoneum and Intestines*.

These are forms of disease of great danger, and no one agent can be effectual. The disease can only be relieved by such means as will allay inflammation, and the whole artillery of the antiphlogistic treatment must be brought to our aid—venæsection, leeches, fomentations, diet, cold drinks, ice, &c.

Among these remedies, evacuants from the bowels are not to be overlooked—They should be of a proper character, such as will evacuate, without exciting irritation. They are particularly useful in Peritonitis, and they excite secretion from the whole internal surface of the Intestines—and by exciting secretion from the internal surface of the intestines, they relieve the external. The use of these articles in this species of inflammation will not be objected to by any one.

But in *Enteritis* their claims are not so readily admitted.

It has been said, they will increase inflammation, and from the description given to you of their physiological operation upon the mucous membrane, they will certainly do so, if improperly used.

One important effect of these remedies should be kept in view—that

when properly employed they renew secretions, which is a very important method of removing inflammation, acting as by resolution.

The Intestinal surface consists of about 1400 square inches, from the whole of which secretion and exhalation are going on—It is obvious, therefore, that purging affords a very powerful means of diminishing the quantity of fluids in the body, and of depleting locally from the part.

The *Constipation* attendant on *Intestinal Inflammation* is very difficult to be overcome, being generally attended with much irritability of the stomach, so that medicines which would act, are rejected—Cathartics have, therefore, been regarded as useless, and the reduction of inflammation has been attempted by bleeding, and afterwards by Cathartics. This practice cannot be relied upon altogether—we are not to be satisfied until the bowels have been evacuated—Some perseverance is required, the medicine being often rejected as soon as taken, yet it is right still to persist, for although much may be thrown up, some will be retained. The quantity retained, accumulates in proportion as it is repeated, and at last, with the aid of enemata, stools are procured, at first small in quantity, but afterwards more copious. With this object being accomplished, the vomiting ceases, the tension of the abdomen is relieved, and the soreness is diminished. This effect gained, it is seldom necessary to resort to bleeding afterwards—the bowels, under the continued use of mild cathartics, recover their disposition to healthy action.

In *Dysentery*, they are useful by removing offensive and irritating matters which give rise to the disease—The evacuants are often required to be of an active character—Mild articles insinuate themselves between the feces and the surface of the intestines, leaving their indurated contents, and the morbid secretions, which often cause and keep up the disease.

In *Diarrhœa*, Cathartics are also highly useful. This disease is frequently brought on by crude and undigested matter passing into the intestines, which by stimulating the excretories and the surface as they pass, excite a copious secretion of fluids, by which the constitution endeavors to rid itself of the irritation.

The treatment of this disease, when preceded by Cathartics of a moderate power, renders the subsequent management, therefore, much more easy and certain.

In *Colic*, which is produced by such a variety of causes, that no single agent will be sufficient to contend against it—Sometimes speedily removed by an emetic, and at other times, the irritability of the stomach has been such, that the mildest cathartics could not be retained—The treatment to be pursued.

There are various other cases of intestinal derangements, in which the good effects of this class of medicines are exhibited. They will be considered hereafter.

In diseases of the *Chylopoietic viscera*.

Not only is this class of Medicines of importance in the affections of the Alimentary canal, but in those of the Chylopoietic viscera generally.

Their use affords us the means of depleting from these organs, and by a continuance of the Cathartic, according to circumstances, we are able first to alter, and then subdue the derangements which exist. The cases to which I allude are those numerous examples of deranged secretions, hepatic and intestinal, which though not reducible to classes and species, are frequently seen in practice. They are exhibited in the discharges of the patient, in a furred tongue, impaired appetite, feverishness, irritability of temper, and deranged sensations generally. In these cases Cathartics are not to be used with the freedom which more acute cases require—they are not to be employed for their evacuant, but their alterative action, and by pursuing this course with steadiness, for weeks, and even months, the happiest effects I have known to follow. It is in cases of this nature that the Blue Pill exhibits a very salutary operation. By its use, the action of the bowels has been kept up for weeks, and though there was commonly two or three evacuations daily, yet the patient without being debilitated, has been gradually relieved of the symptoms I have enumerated, and at the expiration of this period, improved in health and appearance. It is probably from a similar action being kept up upon the bowels, that the mineral springs containing active purging ingredients, as the Saratoga waters, afford such relief to patients laboring under visceral affections, and this independent of the benefits which are attributable, in all invalids, to change of air, of scene, of diet, and the gaieties which these situations furnish.

Cathartics, in these cases, excite an action which is different from the existing one, and to this circumstance we are to attribute many of their curative effects. They induce a new action in the secreting vessels, which though it does not destroy, yet it greatly weakens the existing disease, and they may properly be considered alteratives.

Thus Rhubarb operates in curing Diarrhoea, and thus Cathartics operate generally in the affections I am considering.

In diseases of the *Cerebral system*, Cathartics are of the greatest service. Their good effects in these cases depend upon their operating in three several ways.

1. Evacuating the blood-vessels.
2. Exciting irritation in parts distant from the affected.
3. Inducing a new action.

In *Headache*—of this very protean disease, what shall I say? It has its origin in a variety of causes—sometimes Idiopathic, sometimes Symptomatic—arising often from an affection of the nervous and arterial systems, and from the Alimentary Canal. It is situated in different parts of the head, and of various duration—Of local or constitutional origin.

From Constitutional diseases—as in Periostitis of the cranium, following a mercurial course, or connected with the constitutional symptoms of Syphilis.

From Rheumatism.

From Spinal irritation.

From Plethora, or Deficiency of blood.

The stomach, in most cases where the head is affected, will be found

in fault. It is either disordered from the substances improperly introduced into it, or from its own secretions—When from the former evacnants will be required; and when from the latter, by medicines calculated to correct them. The use of antacids, with a preventive treatment, will succeed in most cases in relieving the complaint of headache when depending on the stomach.

The Constitutional forms of the disease, by remedies of a general character.

In *Mania*—all are aware of the importance of this class of remedies in this disease—Symptoms calling for their use, are—the suffused complexion and foetid breath, pointing out the disordered state of the stomach and bowels—the tongue is tremulous, and covered with a white slime—the appetite is impaired or depraved—the bowels are constipated, and sometimes in a considerable degree—Nothing more remarkable than the fetor which taints the atmosphere of the patient.

The abdomen will often be found tumid, especially in the region of the epigastrium.

In *Maniacal* affections, the ancients rested their chief reliance on Cathartics, and black Hellebore was the medicine employed for fully evacuating the intestinal canal—But though Hellebore is abandoned after 2000 years use of it, the general utility of purging is still undoubted.

In *Epilepsy*—When the causes of this disease are considered, this class of remedies will be found equally useful. Thus it is produced by worms, by the sordes of dysentery, by poisons, by repelled eruptions, and very often by constipation of the bowels. Evacuants continued from day to day, unless forbid by circumstances.

In the treatment of Apoplexy, they are valuable auxiliaries to blood-letting. This will be made apparent by considering the causes of this disease—The causes specified. The purging to be effectual, must be copious, and produced by the most active remedies.

When deglutition is impeded, Croton Oil, in the dose of a drop or two, placed upon the tongue, is sufficient to evacuate the intestines.

To relieve the consequences of Apoplexy, as *Coma* and *Costiveness*, nothing answer better than the use of brisk Cathartics.

In *Paralysis*, the same remedies are beneficial.

In *Hydrocephalus Internus*, also highly commended—Close connection between this disease and the disordered condition of the Alimentary Canal—In the Liver, evidences of inflammatory action, and also of undue irritation in the Alimentary Canal—purgative medicines are among the most important of our remedial measures. There is a considerable connection between Diarrhoea in children with Hydrocephalus—Examples may be adduced to show, that symptoms of disease of the head, with convulsions, supervene upon the suppression of a diarrhoea in children—and, again, a diarrhoea during dentition, is often a salutary effort of nature to relieve herself—and much mischief is done by a sudden suppression of the complaint. If Hydrocephalus is produced by the sudden suppression of a Diarrhoea in children, upon similar principles, a Hydrocephalus may be relieved and removed by an artificial Diarrhoea.

In *Dropsies*—The action of the absorbents promoted by Cathartics—This dependent upon the copious secretions which take place from the surface of the intestines, occasioning a deficiency of serous fluids in the blood-vessels, and the consequent efforts on the powers of the system to restore the deficiency which has taken place—the energy of the absorbents thereby roused into action.

The use of Cathartics in Dropsies of an ancient date, and probably may have been suggested by the occasional natural cure of Dropsy by a spontaneous diarrhœa. Their employment should be regulated with some caution and discrimination—Improper where the constitution is much broken by age, long continued disease, or intemperance—Useful in an opposite state of the system—The form of Dropsy to which they are best adapted is ascites.

Many other diseases might be enumerated in which they afford relief, but the description would only cease with the detail of most of the diseases incidental to the human body.

Having pointed out the nature of their operation, with their positive and relative effects, and their application in the diseases of most common occurrence, I proceed to the consideration of the Individual Cathartics.

PARTICULAR CATHARTICS.

DIVIDED into Vegetable and Mineral—Under the first, will consider of the

Family *Euphorbiaceæ*—*Ricinus Communis*, or Palma Christi—Castor Oil.

Natural History—Native of the Indies, but grows well in this country—The seeds are the part which furnish the oil, and from their resemblance to the Ricinus, or Tick, the plant has received the same name.

Description of the plant.

Stem round, thick, purplish red color, and rises to the height of six or eight feet.

Leaves large, divided into lobes.

Flowers arranged in spikes.

Capsules three celled and three seeds.

The oil is prepared from the seeds by expression and decoction. The former is the best, and is obtained from the seeds by means of a powerful hydraulic press. It is limpid and destitute of color and smell.

Process of preparing the oil by decoction described.

Medical uses.—Castor Oil is one of the mildest and most extensively employed articles of the M. M. It is so innocent in its operation, and at the same time so salutary, that it is administered without hesitation in the commencement of sickness, and is one of the substances most commonly resorted to before professional aid is required. If it does

not stimulate the bowels in any great degree, nor occasion griping, but operates gently, where the system is but slightly disordered, it is most commonly sufficient to re-establish a healthy action.

In the *diseases of Children*, it is particularly valuable, and to their cases the strength of its impression is peculiarly well adapted. There are few articles which can supply its place, and fewer still, which, in the hands of the common people, who interfere so largely in the diseases of this interesting portion of the species, can so safely be trusted.

Useful in the *Intestinal* affections of adults, and exhibits no less valuable and agreeable results.

In *sedentary* and *costive habits*, well adapted, as it is observed that though it be repeated, the doses may be more and more diminished, leaving the bowels in a soluble state.

Well adapted to cases in which more irritating purgatives would prove hurtful, as in *Nephritic* and *Calculous* cases.

In the various grades of *Colic*, usefulness well known—Cannot be trusted where large evacuations are required—if used, should be preceded by a dose of Calomel. Thus exhibited, it promotes purging, and moderates the severity of the drastic medicines.

In *Dysentery*, much employed—lessens the griping and general distress, diminishes the tenesmus, and the frequent desire to evacuate the intestinal canal. More active articles are generally required, as it is insufficient to expel the morbid contents of the bowels.

Castor oil, the basis of a preparation called the oleaginous mixture, which is employed in the diseases of the Intestines, after their contents have been evacuated. It is prepared as follows :

R. Castor oil,	℥ ii.
White Sugar,	℥ iii.
Powdered Gum Arab.,	℥ iii.—to be well rubbed together,
add slowly water	℥ vi.
Laudanum,	℥ ss. to ʒ i.

Dose, ʒ ss. to ʒ i. every hour, or two hours, until relief is obtained.

In the place of Gum Arabic, the yolk of an egg, or a thick emulsion of Almonds, or honey, may be employed to promote the union of the oil with the water. In this mixture the taste of the oil is disguised, and we have a very useful preparation.

Besides these diseases, Castor oil is useful in hæmorrhoids, hæmorrhages, and in the complaints of parturient women.

In the *Convulsive affections of Infants and Adults*, depending upon irritating substances in the first passages, or upon poisonous articles, as the seeds and pods of the Stramonium, or undigested food, benefit will be derived from a speedy evacuation of them. For this purpose, it is one of the safest articles, and may be used with great freedom—From ʒ ii. to ʒ iv. may be administered under these circumstances, in divided doses, frequently repeated, until relief is obtained. It is best given unmixed.

Modes of Exhibition—To many persons this article is very objectionable, from its nauseousness and the difficulty of swallowing—May be given floating upon peppermint water—In coffee, or mutton broth—in tepid milk, or lemonade—in any aromatic water, or the Comp. Tinct.

of Senna. This last conceals its qualities, and increases its operation—Castor Oil Capsules.

Dose—i., ii., or ʒ iii. for Adults; Children, ʒ i. to ʒ ss. In urgent cases it may be increased to a great extent.

Adulterations.—There is at present but little inducement, the plant being cultivated very generally, and the oil obtained with little expense.

A circumstance distinguishing it from other fixed oils is, its extreme solubility in highly rectified spirits—entirely soluble in twice its weight of strong alcohol.

Family *Euphorbiaceæ*—*Croton Tiglium*—Oil of Croton—Obtained from the seeds of this plant.

The medicinal properties of this article have been long known—Revised in the last few years, and introduced into practice.

Natural History—The plant attains the height of ten feet.

Bark is smooth, and of a greyish color.

It produces seeds resembling those of the castor oil plant.

The seeds, and the expressed oil, act as a very powerful hydragogue Cathartic, and hypercatharsis is frequently produced.

The natives of Ceylon are said to take one of the seeds as a dose.

Effects of one of the seeds—It produces no immediate unpleasant taste—When swallowed a sensation of heat comes on in the fauces and throat, which extends to the stomach and bowels—and in less than half an hour, a violent Cathartic operation takes place.

Appearance of the oil—When quite pure and fresh, it is colorless.

As met with in the shops, it is viscid and yellowish, even of an orange color.

Smell faint.

Taste acrid, most felt in the throat.

Analysis of the Oil—

Contains, with other principles, Crotonin and Crotonic acid—The active property depends upon the Crotonic acid, which passes off with the fixed oil.

Medical uses—Employed in obstinate Constipation of the bowels, where there are no inflammatory symptoms to contra-indicate its use.

In *Maniacal* cases, its use has been attended with success.

In *Dropsy*, and for the expulsion of the *Tape* worm—When a tape worm has been expelled, it has been by the drastic irritating quality of some article like the present.

Croton oil is a useful addition to Castor, or Almond oil, rendering a smaller dose effectual.

Mode of administration—In substance, expressed oil, and tincture—In substance most violent, and therefore is seldom used. The oil is usually administered after the following formula :

R. Croton oil,	1 drop.
Oil of Caraway,	1 drop.
Confection of Roses,	iv. grs.

To be mixed and formed into a pill. The crumb of bread may be used, or the Comp. Extract of Colocynth.

The tincture prepared as follows :

Croton seeds, bruised, ℥ii.
 Alcohol, $\frac{1}{2}$ pint.

Triturate the seeds thoroughly with a small part of the alcohol, then add the rest—digest for ten days, and filter the mixture. The dose is ℥i.

Adulterations, from its high price, with Olive, or Castor Oil—may be detected by agitation with alcohol, which dissolves it out, and consequently lessens its entire bulk.

External application—Useful as a Counter-Irritant. Its employment produces an eruption in a very short time, without much suffering, and which is very effectual. The eruption much resembles chicken pox.

Manner of using the Oil—An erythematous redness soon produced with extended inflammation. In a few days, many little vesicles of the size of a pin's head make their appearance. Several run together, and are confluent—Contain a puriform fluid—Has been useful in Rheumatism—In affections of the Heart applied to the thorax—In Bronchitis, in Pulmonary diseases, in Local pains.

To restore repelled eruptions—as Scarlatina, Measles, &c.

Family *Euphorbiaceæ*—*Euphorbia Latyris*, or *Caper Tree*—Spurge Oil.

Obtained from the seeds of this plant.

The oil is similar in color to Castor oil. But little odor—no bad taste—mild in its operation—Has been recommended as the most quick and safe of the newly discovered purgatives, and has been administered in cases where there is intestinal irritation.

Diseases in which employed—Fevers, Dysenteries, Anasarca following Intermittents.

Not entitled to the encomiums bestowed upon it. The dose varies with the age. From iii. to iv. drops to xx. or xxx., united with the paste of Chocolate, or syrup, or in a wine-glass of sweetened water.

Holds an intermediate station between Castor Oil and the Oil of Croton.

Family *Jasminææ*—*Olea Europæa*—*Olive Tree*.

Natural History—Tree grows to the height of thirty feet.

Leaves, firm, narrow, lance shaped.

Flowers white, small, numerous, in clusters.

Fruit, a smooth oval drupe.

The oil is obtained from the fruit by pressure, and is cultivated for the sake of the oil in France and Spain, &c.

Employed in diseases—Externally and Internally.

As an *external application*, long been the custom in Italy to anoint the body with it in Fevers. Its effect upon the pulse decidedly sedative, its application during the space of six hours reducing it from 72 to 52 pulsations in the minute—hence the practice so common in hot countries of anointing the body with oil. Employed also in the plague, and recently recommended in Scarlatina. In this disease its application has afforded much satisfaction—allaying the heat and irritation of the surface—lessening Febrile action—rendering desquamation more easy, and diminishing the risk of dropsy. Instead of olive oil, lard, or

a piece of fat bacon, rubbed over the whole body two or three times a day, for ten days, or until relief is afforded.

United with lime water, valuable application to burns—Used in the formation of ointments—To inflamed bites, venomous insects, &c.

Rubbed over bedsteads, prevents the appearance of bed bugs.

Internally—it is a mild and pretty certain laxative, less offensive than Castor Oil—Used in all the diseases in which that article is employed—only given in larger doses.

In *Obstinate Constipation* has succeeded after drastic purgatives have been employed, and cases are recorded of its utility. The reason of its efficacy, is, that relying upon its mildness very large doses are administered, and in this manner insinuating itself into the bowels, it gradually softens down the feces, allays irritation, and by its stimulus being adapted to the excitability of the canal, may allow the feces to pass onward, where more stimulating articles would excite contraction.

Used where mineral poisons have been taken, but with no particular advantage.

*Family Jasmineæ—Fraxinus Ornus, or Flowering Ash—Manna—*Obtained from this tree.

Incisions are made in the trunk of the tree, and a sweetish juice flows out in considerable quantity, which concretes upon exposure to the air. Cultivated in Sicily and Calabria for this purpose. (This sweetish juice is obtained from other trees, as the maple, walnut, &c.) This juice gradually hardens upon the bark, and in the course of eight days, acquires the consistence and appearance met with in the shops. The different qualities of Manna dependent upon the circumstances under which it is obtained from the tree, and the impurities which are mixed with the juice.

Chemical Analysis—

Sugar, mucilage, extractive matter, mannite—Preparation—precipitated in small beautiful white needles—Used in the adulteration of Quinine.

Gentle purgative—in some constitutions produces flatulence, heart-burn, &c. Seldom used alone, but combined with other cathartics, either to increase its activity, or to lessen the irritating operation of other cathartics. Much employed for children, combined with magnesia, rhubarb, salts, or jalap. Formula for the administration, vide Article Senna. Dose \S i. to \S ii.

When given alone to children, as much as they will eat.

Family Leguminosæ—Cassia Senna—Senna.

Genus *Cassia* contains many species—the *C. Acutifolia*, or pointed leaf, the best.

Natural History—A native of Egypt—Arabia.

Description of the plant.

Leaves oblong, pointed, one inch long, $\frac{1}{4}$ inch wide.

Color yellowish green.

Smell faint, disagreeable.

Taste nauseous, subacid, bitterish.

One of the remedies derived from the Arabians, and when first introduced, the pods were used instead of the leaves, and said to be more efficacious. The fact is the contrary, but they seldom gripe.

Chemical analysis—

Several principles—the most important is termed Cathartine. It is an incrystallizable substance.

Color yellow, odor peculiar, taste bitter, nauseous.

Medical properties—Active and sure cathartic, seldom given alone, but combined with other cathartics, either to increase their activity, or to lessen the irritating operation of its own action. In the opinion of Dr. Fordyce, the most certain stimulus to the bowels in producing purging of any substance he has ever tried. The principal objection to its use is its tendency to produce griping, though it does not exist in a greater degree than with other resinous cathartics. Its active principle resides in a bitter extract, which is not very soluble. It becomes soluble by union with other cathartics, as the saline—so much so, as to prevent any griping operation, at the same time its activity is increased. Manner of employing it—

Leaves of Senna,	3 ii. to 3 ss.
Warm water,	ibi.—Simmer a short time and strain,

add

Sulphate of Mag.,	3 i.
Manna,	3 i.

The dose is a small tea-cupful every hour, or two hours, until it operates. Thus prepared it is quite active, succeeds after other cathartics have failed.

In preparing the infusion, it should not be allowed to boil, as the active matter is of a volatile nature—neither should it be kept in an uncovered vessel, as the oxygen of the atmosphere combines with the extractive matter, and forms a yellowish precipitate, which gripes violently, but does not purge.

There are no particular indications for the use of this medicine. It relieves costiveness, cleanses the primæ viæ, and removes the constitutional derangements dependent upon these causes.

For children, an infusion of Senna, sweetened with sugar, with the addition of a little milk, given in the form of tea, is readily taken, and operates with much certainty.

Official preparations—Comp. Tincture of Senna—the dose 3 ii. to 3 ss. in any appropriate vehicle. Castor Oil taken upon this Tincture.

Senna administered in the form of infusion as an *Enema*—prepared stronger than for internal use. Oil or salts may be added, to increase its activity.

Adulterations—The leaves of various other plants mixed with those of Senna—Practiced in the following manner:—The branches with the leaves are dried in the sun, the leaves are then stripped from the stems, and these thrown away.

They are collected by the poorer classes, coarsely pounded, and mixed with the leaves of other plants.

The seeds of the oriental Senna, obtained from the pods, if planted, would afford a good substitute for the imported article.

INDIGENOUS CATHARTICS.

Family *Leguminosæ*—*Cassia Marylandica*—Indigenous Senna.

Description of the plant.

Stems five or six feet.

Petioles, bearing eight or ten leaflets.

Flowers, bright yellow.

Fruit, a long pod.

The leaves have a resemblance to those of the imported, and said to be nearly equal in activity.

The objection made to it, is, that it is more likely to cause griping pains—May be corrected by the addition of an aromatic, or liquorice root.

In preparing the infusion, a larger quantity of the leaves should be employed than in the preceding instance—a third more.

Family *Juglandæ*—*Juglans Cinerea*—Butter-nut, Oil-nut, White Walnut.

Natural History—The tree grows in various parts of the Union, the wood being useful for various purposes in the arts—the sap is abundant and possesses saccharine qualities, from which sugar can be obtained by boiling and evaporating.

The inner bark of the tree, and also of the root, is a mild and efficacious laxative. A watery extract is usually made, being not only more convenient, but more active—was much employed during the Revolutionary War, but has since fallen into neglect.

Its properties may be improved by combination with other articles, as calomel, in the following proportions :

Extract of Butter-nut, 3 ss.

Calomel, grs. x.

Simp. Syrup as much as is sufficient, made into pills of a convenient size.

This article is particularly adapted to habitual costiveness, and many persons whose state of health has rendered them dependent upon the use of laxatives, have been relieved by its use—given in pills.

Dose x. to xxx. grs.

Family *Podophyllæ*—*Podophyllum Peltatum*, or *May Apple*—Different parts of the plant endued with different properties.

Root creeping and jointed—when dry, brittle and easily reduced to powder.

Stem a foot in height, smooth, round.

Leaves peltate, palmate, divided by fissures into lobes.

Flower single, and in the fork of the stem.

Fruit ovate, yellowish.

This plant confounded with another, the *Passiflora Incarnata*. The same described and the distinctions noticed.

Properties of the P. P.

It is an efficacious cathartic, and might be substituted for Jalap.

In doses of a scruple, it is safe and active, and may be administered alone, or in combination with Calomel, or the bi-tartrate of Potash.

Has been employed in *Intermittent* and *Remittent* Fevers, in *Drop-sies*—Has not been found to give the least inconvenience when combined with calomel in the proportion of x. grs. each.

This article might very well be substituted for Jalap, and particularly by practitioners residing in the country, being equal in activity to Jalap, and not more liable to cause griping, &c.

Family *Convolvulaceæ*—*Convolvulus Jalapa*—Jalap.

Natural History—

Root tuberous, fleshy, lactescent.

Leaves alternate, subcordiform, acute, shining surface above, reticulated structure beneath.

Flowers solitary, axillary, violet color.

The root acquires considerable size, generally of the weight of a pound or less. Found in the shops cut into pieces of various size, and shape.

Found growing in Mexico and South America.

The roots when dried are solid and ponderous, blackish on the outside, grey within, marked with veins.

The quality of the root determined by its hardness, heaviness, and dark color.

Chemical analysis—

Resinous matter, gummy extract, ligneous principle, several salts.

The purgative property resides in the Resin. It exists in different proportions in different roots—much irregularity, therefore, occurs in the operation.

These differences dependent upon the different proportions of their intimate composition. These are influenced by the diversity of soils in which the roots are found, the state of the plant when dug up, and the season of the year.

The gummy part, though large in proportion, is not purgative.

Character of Jalap as a Cathartic—very efficacious—Known to the Mexicans before the discovery of Mexico, and was introduced into Europe in 1610.

It bears the same relation to cathartic substances, that Tart. Antimony does to the rest of the Emetics.

It is not so powerful as some others, but it can be resorted to in a greater variety of cases, and the readiness and facility with which it operates, with the beneficial effects which follow its use, entitle it to be considered a very valuable article.

Rarely given alone, but combined with various substances with a view to quicken its operation, to obviate its griping quality, or to enlarge the sphere of its operations.

Combined with the Sulphate of Potash, Bi-Tartrate of Potash—When to deplete the liver, and promote discharges of bile, a few grs. of Calomel may be added. The favorite formula of Dr. Rush x. and x.

The same combination useful as an anthelmintic, and as a hydragogue.

In combination with the Bi-Tartrate of Potash, useful in dropsies—with Ipecacuanha, its purgative properties increased. Triturated with sugar, by which it is reduced to a very fine powder, it operates in much smaller doses. The action of these various articles illustrates the value of medicinal combinations.

The Preparations of Jalap—are Tincture, Resin, and extract. Appearance of the resin—fracture shining, taste feeble, soon becomes acrid and disagreeable—Rarely found pure, being adulterated with other articles—Produces the same effects as the powder, though in smaller doses.

The small dose required—the facility of accurately measuring the dose, might give it a preference—objections to its use. The best mode of employing the article, is in the form nature gives us—in powder.

The tincture of Jalap, a popular preparation.

Jalapine—seldom or never employed.

Adulterations—with Briony root—distinguished by its pale color, and less compact texture.

Convolvulus Macrorrhizus.

This plant introduced, not from its importance, but because it has been figured and described as the plant which affords the Medicinal Jalap—very distinguished botanists having fallen into this error.

The error has been corrected by the patience and zeal of Dr. Coxe, late professor of M. M. in the University of Pennsylvania.

The late Dr. Baldwin experimented with the root, with a view to its medicinal properties, and found that 3 vi. could be taken without any cathartic operation being excited.

Without entering into any particular explanations, will state that it has no pretensions to be so considered.

Convolvulus Scammonia, or Scammony.

Natural History—The plant grows in many parts of Asia, particularly Syria.

The root affords this substance, and acquires a considerable size. It contains a milky juice, which, when collected, and allowed to become concrete, affords the substance in question—Method pursued in collecting the juice. The quantity afforded by each root is small, a few drams only—becomes concrete by exposure to the sun and air.

Scammony of commerce not pure, but is adulterated with various additions, as meal, ashes, sand.

Two sorts of Scammony in the shops—Aleppo and Smyrna. The first is the best, it is in light spongy masses, easily friable, glossy, of different shades of color, from grey to black—The kind preferred. The Scammony of Smyrna less valued.

Chemical analysis—

Resin, gum, inert vegetable matter.

Medicinal properties—Strong, stimulating, and even drastic cathartic—operating quickly and powerfully.

Employed externally and internally—The diseases—Dropsy, Hypochondriasis, Worms—Has been of decided utility, but unequal in its

effects—Sometimes unsafe from its violence, and again exerts no action. The inequality of action dependent upon the variable quality of the article.

Dose—iii. to x. grs.

Family *Polygoneæ*—*Rheum Palmatum*—Rhubarb.

Several species of plants belong to this genus. Four species have been considered as furnishing the true Rhubarb—*R. Undulatum*, *R. Compactum*, *R. Australe*, *R. Palmatum*.

The natural characters of the plant still undetermined. They flourish in the Eastern parts of Asia, comprehending the Asiatic provinces of Russia, Tartary, China, &c.

Characters of the plant.

Herbaceous—Root, thick and compact.

Leaves radical, large size.

Two kinds are met with in the shops.

1. Rhubarb of *China, India, Tartary, Turkey*.

The root of this description is in cylindrical pieces.

Color, dull yellow.

Texture compact, marbled with veins.

Fracture dull and rough.

Odor strong and peculiar.

Taste gritty when chewed.

Tinges the saliva of an orange color.

Powder fawn color.

Each cylindrical piece is pierced with a hole, through which has been passed a cord, by which they are suspended to the branches of trees, that they may be dried more effectually.

As the roots perform a long sea voyage, they are liable to be damaged. In this state attacked by the worms—Conduct of the merchants—Fraud readily detected. The Rhubarb from the places mentioned is less esteemed than the Russian.

2. The *Russian* is produced from the same plant, and cultivated in the same places as the Chinese. It is more esteemed from the greater care taken in the selection. It is to the careful examination it undergoes by the agents of the Russian government that it is preferred.

Rhubarb is also cultivated in England, France, and in this country. The *English* Rhubarb is found in pieces long and slender.

Odor disagreeable and naseous.

Taste astringent, no grittiness when chewed.

In chemical composition, also inferior. The cathartic property is feeble, while its astringent is greater. This arises from the roots being taken up before its properties are matured, in consequence of their decaying in the ground.

Eastern Rhubarb not taken up from the ground until it has acquired its seventh or eighth year.

While the eastern Rhubarb possesses a color more fixed, a stronger odor, and a taste quite aromatic and lightly bitter, the English will be found to have a taste more mucilaginous and herbaceous, and a less degree of strength.

It is difficult to determine, by the appearance of the roots, their real character. Much deception is practiced in artificially preparing the root, so that inferior pieces will frequently be sold for the best.

Of the culture of Rhubarb, little is known. The plant thrives best in sandy soils. The roots are collected twice a year, and those only selected that have attained the age of six years.

When taken up, the roots are deprived of their bark, cut into pieces, suspended on strings, in places well ventilated, excluded from the sun's rays. By this operation, the root loses four-fifths of its weight.

A second operation succeeds. The roots are cleansed afresh, divided into smaller pieces, and carefully examined, so as to ascertain that they are not damaged.

At Canton, the root is purchased directly from the agents of this company and others, and it is not selected with the greatest attention to quality at this place. As an evidence, 7500 lbs. of Rhubarb from Canton, were rejected during the month of July, 1848, by M. J. Bailey, M.D., special examiner of adulterated and spurious drugs for the port of New-York.

Chemical analysis—

Discovers a peculiar principle, which gives to Rhubarb, taste, odor, color, called Rhein, or Rhabarbarine.

Bitter extractive matter.

Fixed oil.

A small quantity of gum, starch, many salts.

Yellow color of Rhubarb not very destructible.

The acids make no change.

It resists the digestive process, and is observed in several of the secretions of the body. It may be detected in the urine, also the perspiration and milk.

Medical uses—Valuable Cathartic, and derives much additional value from being applicable to purposes for which other cathartics are not adapted. Not very active, but gentle in its operation.

The cases in which it is useful, are those diseases where the patients are much debilitated, where the bowels are much weakened by a long course of medicines, or where from constitutional peculiarities other cathartics could not be employed.

It is endowed with a remarkable combination of medicinal powers—an *astringent*, *cathartic*, and *tonic* principle—Its virtues thereby much enhanced, and becomes particularly useful in many of the forms of intestinal derangement.

Not employed in diseases of a Febrile character, and where an impression is to be made upon the system; chiefly useful in affections of the alimentary canal.

In *Costiveness* well adapted—It is sufficiently purgative without impairing the energies of the *primæ viæ*—Employed in the form of pill at bed time.

The practice of resorting to drastic stimulating pills in costiveness very objectionable—too often confirms the habit it was designed to cure. Habit exerts its power in this particular, in a very remarkable degree—advisable to solicit nature's operations at a regular hour every day.

In *Dyspepsia*.

In *Hypocondriasis*.

In these affections, Rhubarb is a very common article used, but generally combined.

The following preparations are familiar to most persons afflicted with costiveness, or dyspepsia.

1. The dinner pill, composed of Rhubarb and Carbonate of Soda—it is usually taken an hour before dinner.

2. The Peristaltic persuaders, composed of the following articles :

℞. Powdered Rhubarb, ʒi.

Powdered Ipecac., grs. x.

Oil of Caraway, gtts. x.

Simp. Syrup, as much as sufficient—to be made into a mass and divided into xx. pills.

Dose—ii. to iii. at bed time.

3. The Stomachic pills—prepared as follows :

℞. Powdered Rhubarb.

Powdered Ipecac.

Castile Soap, each ʒi.

Honey, as much as is sufficient—make into a mass, and divide into lx. pills—ii., iii. or iv., twice a day.

In *Dysentery*, the administration of a cathartic will be found very beneficial in the commencement of the disease—Calomel and Rhubarb employed for this purpose—The astringent operation of Rhubarb coming into action when the cathartic has ceased. In the advanced stages, the following compound may be used with advantage :

℞. Powdered Rhubarb, grs. xxx.

Powdered Ipecac., grs. x.

Powdered Opium, grs. iv.

Honey, as much as is sufficient—make into a mass and divide into xii. pills—a pill to be taken every two or three hours until relief is obtained.

Useful in allaying the tenesmus and griping, which are so distressing.

In *Diarrhœa* a similar practice equally beneficial, and for like reasons, an astringent operation being exercised. After evacuations from the bowels, the same pills may be employed as in the preceding disease.

The operation of Rhubarb is quickened by combination with other cathartics—as neutral salts, or calomel.

In the *diseases of children*, it is much employed, combined with the carbonates of potash and soda. With the alkalies it undergoes a change of color and properties, and becomes very useful in the intestinal derangements of children following teething—Useful when the bowels perform their functions feebly, where the passages are of a green color, and the dejections slimy and curdled. Formula—

℞. Carbonate of Potash, or Soda, grs. xii. to ʒi.

Powdered Rhubarb, ʒi. to ʒss.

Water, ʒii. to ʒiii. m. ʒii. to ʒiii. for a dose, every two hours, according to age, until relief is afforded. Thus administered, it exerts a gentle cathartic operation, neutralises acidity, and exercises a tonic operation.

In the treatment of these affections, Rhubarb has been used in a variety of ways, and every nurse professing to treat the diseases of children, has some favorite mode of preparing this article. They are generally hurtful by being combined with heating articles, with a view to dislodge wind, or some other fancied effect to be produced.

Other formula—Rhubarb Tea, prepared as follows :

3. Powdered Rhubarb, ʒii.

Fennel Seed, ʒii.

Water,

1 pint—boil until $\frac{1}{3}$ is dissipated—the dose is ʒss. to ʒss., two or three times a day—Useful in

the diseases of children, especially in colic, which occurs in the first three months—Succeeds after anodynes have failed.

Another formula of much utility in the Intestinal derangements of children or adults.

R. Powdered Rhubarb, ʒss.

Calcined Magnesia, ʒi.

Powdered Gum Arabic, ʒss.

Mint Water, ʒvii.

Syr. Morphine, ʒii. mix.—dose ʒss. to ʒi.

for an adult, every two or three hours, and for children ʒi., or more, according to age, in the same manner, until relief is afforded.

Syrup of Morphine is prepared as follows :

R. Acetate of Morphine, grs. iv.

Simple Syrup, lbi. m.

A very pleasant preparation in the diseases of children, and so far from refusing, I have known them to call for it.

Other preparations—*Extract of Rhubarb*—Preparation.

When of a good quality, useful as a gentle evacuant, given in the form of pill, alone, or combined with other articles.

Sulphate of Rhubarb, or *Rhabarbarine*—Seldom or never employed.

Tinctures of Rhubarb are purgative and stomachic—seldom employed for the former operation, but used as adjuncts to saline purgatives, for giving them warmth, or to stomachic infusions in dyspepsia, flatulent colics, diarrhœa, the costiveness of old people, and of old phlegmatic habits.

Dose of the Powdered Rhubarb ʒi. to ʒi.

From ʒi. to ʒss. opens the bowels freely.

From vi. to x. grs. for its stomachic properties.

Rhubarb is often recommended to be toasted with a gentle heat until it becomes friable, with a view to improve its astringency. This, however, is not effected, and its purgative property is destroyed.

Adulterations—The powder is often made to assume a fine buff color by the addition of Turmeric.

Family *Liliaceæ*—*Aloe*—Aloes.

This is the inspissated juice of several species of the genus *Aloe*—a native of Africa, but also found in the other quarters of the globe.

Several varieties of the Aloes—the Socotrine, the Hepatic, or Barba-does, and the Caballine, or Horse Aloes. Socotrine, so called from being brought from the Island of Socotra, at the mouth of the Red Sea, is the best.

The different kinds mentioned, differ in being produced from different species of the Aloe plant—The Socotrine, from the Aloe Spicata—all, however, are more or less employed.

Root perennial, strong and fibrous.

Leaves narrow, tapering, thick and fleshy, succulent, edges spiny.

Flower stem rises to the height of three or four feet, smooth, erect.

Flowers in spikes, of a purplish or reddish hue.

The extract is prepared from the leaves by expression—the juice is then evaporated in shallow vessels.

Appearance of the extract.

Surface glossy, clear.

Color, yellowish red—when powdered, a golden hue.

Taste intensely bitter, with an aromatic flavor.

Smell not unpleasant.

Chemical analysis—

An extractive principle, by some called a gum.

Resinous matter.

Properties of the gum.

Taste intensely bitter.

Odor faint, resembling saffron.

The cathartic property resides in this principle, the resin has no purgative virtue.

The medicinal properties of Aloes were long known, and were held in much repute by the ancients. Few articles have been combined in a greater variety of forms, or of which there have been more numerous preparations—Many of them have fallen into disrepute.

In large doses, its effect is to make a strong impression on the alimentary canal, exciting often colicky pains, with very fluid dejections. Its action is exerted chiefly upon the large intestines, a feeling of warmth being experienced in the fundament after each operation from the bowels.

In smaller doses, the same symptoms are experienced, though in a less degree. If its use is continued a few days, there is felt the same warmth and burning in the interior part of the rectum.

The purgative property of Aloes would render this article useful, but there are advantages connected with its operation, which proceed less from its cathartic property, than from its irritating the interior of the rectum, and bringing to this part an afflux of fluids. This derivative, or revulsive power, is of great advantage in the treatment of diseases of the head, chest, abdomen, &c. It is usually given in small doses, as in the following formula :

R. Powdered Aloes.

Powdered Rhubarb.

Blue Mass, each equal parts.

Make into a mass, and divide into pills of a convenient size—Two pills at bed time when required, and another in the morning, if necessary.

The cases in which it is useful, are—pains and heaviness of the head, habitual giddiness and dullness of the mental faculties—in torpor of the bowels—in derangements of the abdominal viscera.

Useful in *chronic affections of the stomach* and bowels, from its gently evacuant and tonic operation, as proved by its extreme bitterness. The symptoms it is calculated to relieve, are flatulence, vomiting, loss of appetite, costiveness, and other symptoms, usually called dyspeptic. Its operation is slow, but usually effective.

In other affections also beneficial—as in Jaundice, Chlorosis, Hypochondriasis, Scrofula, administered after the formula of Professor Mettauer.

℞. Aloes Socotrine, 3vi.
Super Carbonate of Soda, ʒ iss.
Water, lbj.

Lavender Compound, $\frac{3}{4}$ ss.—Digest for sixteen days—the clear liquor may be either decanted, or allowed to remain. This compound acts upon the liver, corrects and prevents acidity, and probably aids assimilation.

The common dose is from $\mathfrak{z}\text{i}$. increased to $\mathfrak{z}\text{i}$.—taken half an hour after dinner and supper.

In *Uterine obstructions* has also been much recommended. Acting upon the rectum, it creates a determination of blood to the pelvic viscera, and excites in languid and phlegmatic habits to a renewal of the catamenia. Useful in debilitated states of the system, and in inaction of the uterine organ—Seldom used alone, but combined with other articles—as the Sulphate of Iron, Myrrh, &c.—The compound Tincture of Aloes, and Hooper's Pills, being employed for this purpose.

The compounds in which this article has entered in large proportions, have enjoyed a great deal of celebrity, and the titles of some of these medicines excite derision at the present day. They are the Elixir of Long Life—the Sacred Tincture—the Elixir de Proprietatis—the Pilulæ Angelicæ, &c.

Aloe enters into the formation of *Cathartic Pills*. There are a number of formulæ for this purpose—as Anderson's, Dixon's, Lee's—for the formulæ of these preparations—Vide Paris Pharmacologia.

The following formula will be found convenient, and sufficiently active.

℞. Powdered Aloes, ℥i.
Powdered Gamboge, ℥ii.
Tartarised Antimony, grs. iv.

Honey, as much as is sufficient—make into xxiv. pills. Three of the pills to be taken at bed-time, and two in the morning, if required; or,

Powdered Aloes.
Powdered Gamboge.
Calomel, each ʒi.

Honey, as much as is sufficient—make into a mass, and divide into lx. pills—ii. to iv. a dose.

As an *Anthelmintic*, particularly in the treatment of the *Ascaris Vermicularis*, or *Ascarides*, highly deserving attention, whether taken internally, or used in the form of enema—Vide *Anthelmintics*.

Objections to Aloes—Its tendency to produce hæmorrhoids; cannot

subscribe to this objection, the complaint, most probably, originating in the costive habit which had existed for some time.

Where it does take place, the predisposition must have existed in a considerable degree. When they exist, improper to resort to this medicine—Improper also during the existence of the catamenial secretion.

The long continued use of this article, gives rise to symptoms of Tenesmus—use should then be discontinued.

Official Preparations—These have been numerous, but are now reduced to a few. They are the compound Tincture of Aloes and Myrrh—The compound decoction of Aloes.

And pills of Aloes and Myrrh—Vide Dispensatory.

Another preparation useful in costive habits, occurring in nervous constitutions, with its usual attendants, headache, and general disorder.

R. Powdered Socotrine Aloes.

Powdered Myrrh, each	ʒi.
Saffron,	ʒi.
Ext. Liquorice,	ʒss.
Carbon. Pot.	ʒii.
Water,	ʒxvi.—boil to ʒxii., then

filter, and add

Tincture Cardamom,	ʒi.
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Dose—ʒss. to ʒi. for an adult, night and morning.

The operation is very mild, and it is useful in dyspeptic conditions of the stomach.

Dose of the Extract ii. to vi. grs.

Family *Guttiferæ*—*Gambogia*—Gamboge.

This is the concrete, gummi-resinous juice of a tree growing wild in *Gambogia*, Ceylon, &c., and called by Botanists, *Stalagmitis Gambogioides*.

The juice is collected in drops, as it falls from the leaf stalks, or young shoots, when broken from the tree, or by incisions—inspissated by the heat of the sun, and made into rolls.

Color, of a deep yellow.

Smell, none.

Taste, slight acrimony.

Solvents, water, alcohol, and sulphuric æther.

Chemical Composition—

Gum, 20 pts. ; resin, 60 pts. in 100.

A very active cathartic, operating often as an emetic—In large doses it makes an impression strongly irritating, and excites copious discharges, with colic pains, from the severe contractions of the muscular fibres of the intestines.

From its solubility it occasions vomiting, nausea, and other distressing symptoms, the effects being proportioned to the dose. The correctives of these symptoms would be some powder of a softening nature—as Malloes, Liquorice, Cream of Tartar, Gum Arabic. The substances acting as correctives, by separating the particles of the Gamboge

from each other, prevent an impression from being made too great, or too long continued.

Has been employed in *Febrile diseases*, though but in a very limited degree at the present time—and among the greatest improvements in the present practice of physic, is abstaining from those violent purgative doses formerly so much in vogue.

Dr. Rush's practice in Yellow Fever—this condemned.

In *Dropsies*, but rarely employed, being too violent for the generality of these cases, which will not support the excessive and debilitating discharges of this medicine—Has been used dissolved in Sulphuric Æther—its stimulus supporting the system under the discharges by the bowels.

Useful where *worms* are to be expelled, its operation being considered sufficient to occasion their expulsion, or to remove from the system the mucous it contains.

A better practice is to administer an anthelmintic, and after the worm has experienced its debilitating influence, this, or other cathartics, may be administered.

Readily perceive the advantages which attends this practice, and particularly useful in cases of *Tænia*.

Gamboge enters largely into the formation of Cathartic pills—united with Aloes, they modify the action of each other—Formula—vide Aloes.

The compound pills of Gamboge, are prepared as follows:

R. Powdered Gamboge.

Powdered Aloes.

Powdered Cinnamon, each ʒi.

Hard Soap,

ʒii.—Mix the powders

together, then having added the soap, beat the whole together, until they are thoroughly incorporated.

The dose is grs. v. to ʒi.

Family *Cucurbitaceæ*—*Cucumis Colocynthis*—Colocynth, or Bitter Cucumber.

A plant of the gourd tribe, growing in Turkey.

Description of the plant.

Stems slender, trailing, covered with short hairs.

Leaves petiolated, sinuated, green above, whitish underneath, hairy.

Flowers, yellow, axillary, solitary.

Fruit furnishes the medicine, size of an orange, cellular, with pulpy matter, and many seeds—the spongy, membranous part of the fruit, directed for medicinal purposes.

Taste nauseous, acrid, very bitter.

Colocynth is a very active cathartic, its properties having been long known, even to the Greek and Arabian physicians. It is an article of extreme activity, and often attended in its operation with the most severe and distressing effects, even to the production of enteritis—Should be employed with great caution, or be rejected in its natural state from practice.

A popular medicine is prepared from this apple—digesting one of them in a pint of spirits—dose half oz.

If employed in this state, it should only be used in diseases admitting of violent remedies, in diseases of the brain, mania, melancholia, coma, apoplexy.

Although condemning this article, the same sentence should not be passed upon the preparations from it. An extract may be prepared in combination with other cathartics, in which the violent operation is corrected without destroying its purgative energy. This extract illustrates the influence of medicinal combination in a more striking manner than any which have been presented to you. It is prepared by adding to Colocynth other articles equally as energetic, yet the resulting compound is so modified as to be safe and manageable. The extract is the only form of this medicine which should be employed.

In combination with Calomel, a very effectual purgative, for evacuating the bowels, and correcting the functions of the biliary system.

The formula recommended, as follows :

℞. Ext. Colocynth Comp., ʒi.
 Calomel, grs. xv.
 Tart. Antimony, grs. i.
 Oil of Carui, gtt. v.—Make into a mass, and divide into xxiv. pills. The dose i., ii., or iii., every night.

Another formula, in which, when to the cathartic, we wish the alterative operation of the medicine, as follows :

℞. Ext. Colocynth Comp., ʒiv.
 Ext. Hyosciamus, ʒss.
 Blue Mass, ʒi.—Mix and divide into xxx. pills. Dose ii. to iv. at bed-time.

Preparation of the Comp. Extract of Colocynth—by digesting in alcohol, Colocynth, Aloes, Scammony, and Cardamom Seeds, and afterwards evaporating the tincture to the proper consistence—A certain and powerful purgative, and generally operates without much griping or inconvenience.

It may be combined with Calomel, and in cases of spasmodic pains of the bowels, with Opium.

Dose of the substance, iv. to vi. grs. Of the Extract—the same.

Same Family—*Momordica Elaterium*—Wild, or Squirting Cucumber.

Native of the South of Europe.

Root large and fleshy.

Leaves, heart-shaped, rough.

Flowers, dull yellow.

Fruit pendulous, elliptical, blunt, two inches long—nearly allied to the cucumber and melon—Fruit the part which furnishes the medicine, and when ripe, upon being touched bursts and throws its contents a considerable distance, hence the name—All parts of the plant are bitter, and strongly purgative ; but the dried acrid juice, or fecula of the fruit, known in the shops as the Elaterium, is the part medicinally employed.

The method of preparing it from the fruit—

The juice is obtained from the ripe fruit, and when strained is set aside to settle—the thicker subsides, while the thinner is poured off—the thicker which remains is filtered, covered with a linen rag, and dried with a gentle heat.

The activity of the article will be proportioned to the care taken in the preparation—for it sometimes happens that the juice contains some portions of the fruit which is inert, and which will lessen its activity.

The quantity of active matter in each fruit, is extremely small, and it is of a resinous nature.

Two kinds of Elaterium to be found in the shops.

The *White* prepared as mentioned.

The *Black*, containing with the juice much coloring and extractive matter—a weaker preparation, and requiring a larger dose.

Elaterium is a very powerful Cathartic, among the most active of the *Materia Medica*—In small doses, augmenting the enteric secretions, so that the alvine discharges exceed in quantity those which are produced by any known purgative.

In the quantity of $\frac{1}{4}$ to 1 gr., night and morning, it will induce and sustain a cathartic action, which will remove from the bowels from two to four quarts of fluid in the twenty-four hours.

Its full effects not obtained, until it has been taken several days, when its specific and peculiar operation will be produced.

Has been recommended in *dropsical diseases*, and particularly *Hydrothorax*—Dr. Ferriar's testimony in its favor, and cases cited by him of its efficacy.

The dose to begin with is $\frac{1}{4}$ to $\frac{1}{2}$ gr.

The effects in full doses are severe, and constant vomiting with frequent stools.

Has been proposed as an alterative remedy in diseases of long standing, but with what success employed, has not yet been determined.

Carbo Ligni—Charcoal—Preparation—properties various—Has been recommended for its purgative operation, and particularly in obstinate constipation, given in large doses.

Has the particular good quality, that it will remain upon the stomach, and even seems to allay irritability of this organ.

Has been employed in *Yellow Fever* with this intention—Employed also in derangement of the *digestive* system. Persons, in these diseases, who are distressed with headache, sore mouth, acid eructations, confined bowels, &c., have been much relieved. These complaints of frequent occurrence with delicate females, who, from feebleness of constitution, or sedentary habits, are afflicted with the above symptoms. A tea-spoonful of finely levigated charcoal, taken two or three times a day, in water or milk, has been found very beneficial, exerting the very favorable influence of removing these symptoms, and keeping the bowels regular.

Berberis Vulgaris—Barberry.

A native of England, but naturalized in this country.

The bark of this plant, especially the root, is bitter and astringent,

and has been used with success as a gargle in aphthous sore mouth—It is possessed of Cathartic properties, and was formerly used in the treatment of Jaundice, originally in consequence of the yellow color of the root.

From analysis, it is shown that this root contains a new principle, which is called Berberine, of a brownish or yellow color, and very bitter taste.

The article operates like Rhubarb, and with equal promptness and activity.

In doses to ii. v., or x. grains, it only aids the bowels—of xv. or xx. grains, it acts upon them, without inducing tormina or uneasiness.

MINERAL CATHARTICS.

THEY are but few in number, and the most important is *Calomel*, or according to the present chemical nomenclature, a *Proto Chloride of Mercury*—

Preparation—One of the most valuable articles of the M. M.—its properties numerous, and diversified—being Emetic, Cathartic, Sialogogue, Alterative, Expectorant, and Anthelmintic.

Its cathartic property only at this time considered, and there is seldom a case in which it may not be given alone, or combined, so as to meet the several indications.

It imparts force to the mild, and moderates the activity of the drastic medicines.

It commences its operation higher in the alimentary canal, by which it often relieves the stomach by determining downwards. It depletes the liver and the other chylopoietic viscera—Hence its value in Fevers, particularly in those called Bilious, when the secretion is apt to accumulate in the upper portion of the intestines, producing great anxiety, languor, and oppression.

Not only useful in these Fevers by its depleting operation, but by its alterative, correcting the secretions of the liver—increasing them when deficient, and lessening them when in excess.

It promotes the operation of other cathartics, without exciting any additional irritation, or rendering them liable to act with violence. In diseases advantageously combined with them, and greater benefits derived than from employing single medicines.

Combined with Emetics, it renders their operation milder, and more effectual.

Easy of exhibition—from its small bulk and insipidity, it may be administered in many cases, when other articles would be rejected.

In irritable conditions of the stomach, can be employed.

In the diseases of children, it is highly useful—it is easily disguised, the dose is small, it operates mildly, and seldom salivates.

When continued in diseases, it will salivate, whether it purges or not.

It is a common impression, that to produce salivation its purgative effect must be restrained. This, in many cases, is correct, for salivation is retarded by the mercury's passing off by the bowels—but it sometimes happens that patients are most easily salivated, whose bowels are most susceptible of its purgative operation.

Rules on this subject.

1. To avoid giving calomel in large doses on two successive days, without employing some other medicine, in order to remove it from the system.

2. It should never be given in frequent doses, when there is but little diseased action, for the system seems most susceptible, when the excitement is not much above the healthy state.

3. Salivation is prevented by combining six or eight grains of Calomel, with about three times the quantity of Jalap, or some other vegetable cathartic.

These rules of some importance, salivation being always painful, and very distressing to convalescents.

Conclude my remarks upon the cathartic operations of this article—Its other properties considered hereafter.

Dose—v., x., and xx. grs.

By increasing the dose of this article, its purgative operation is not augmented.

Forms of administration—in powder, mixed with some tenacious substance—in pills.

If ever violent in its operation, it is owing to the admixture with it, of a small portion of Corrosive Sublimate.

Sulphur—A simple combustible substance. It exists in nature, simple, and combined—It is found in the inorganized and organized kingdoms—In the organized in some plants, as garlic, in mustard, in assafoetida, and in many other plants—In animal substances, as in eggs, in urine.

In the Inorganized, as in volcanic countries, and with minerals—It is separated by heat, by a process called sublimation.

Properties—

Color, bright yellow.

Taste, little.

Smell, little—very inflammable.

Medical uses—Its effects may be considered, as they are of a local, or general nature.

Of its *Local* action on the alimentary canal—In doses of $\mathfrak{z}\text{i}$. or $\mathfrak{z}\text{iii}$., or more, it operates as a gentle laxative—Its action is chiefly exerted upon the large intestines and rectum.

The cases to which it is well adapted, are costiveness, and in hæmorrhoidal affections. For these purposes it is well suited by its mildness, and by evacuating the large intestines, without straining, which always exerts a very bad influence on these tumors. It is usually combined with Calined Magnesia in equal proportions. The preparation preferred, is the Sulphur Præcipitatum, of each $\mathfrak{z}\text{i}$.

In smaller doses, and repeated frequently, it is absorbed. It enters the circulation, excites the action of the heart and arterics, and some of the secretions, particularly those of the skin and lungs—A very offensive gas is given off from the same surfaces, viz: Sulphuretted Hydrogen. It is also found in some of the secretions, as the urine and milk.

From its effects upon the vacular system, in increasing its activity, as well as upon the secretions, it has been used in the diseases of the general system.

In *Intermittents* during the intermission, and with good effects—Its good effects are soon manifested, and a suspension of the disease follows. It is given in doses of \mathfrak{z} i. to \mathfrak{z} iii., three or four times a day, in milk or brandy.

From its action upon the skin exciting perspiration, it has been employed in other diseases of the general system—In *Chronic Rheumatism* alone, or combined with Guaiac—Atonic Gout, in Catarrhs, and other pulmonary diseases, combined with Antimonial Powder—In *Asthma*, when of a chronic character, and resisting other remedies—In *Asiatic Cholera*.

Supposed to have possessed the power of arresting salivation—for this purpose it is wholly inefficient.

In diseases of the *skin*, it is much celebrated, internally used and externally employed, in the form of ointment.

Its curative powers in Scabies, depend upon its poisonous influence over the itch insect, (*Acarus Scabiei*), a little parasite.

When objected to on account of its odour, other substitutes, as Sulphuric acid, with lard, or diluted with water in the proportion of \mathfrak{z} i. of acid to \mathfrak{z} viii. of water.

The curative operations of Sulphur, are promoted by combination with other articles—as the Muriate of Ammonia, in the following formula :

R. Flowers of Sulphur,	\mathfrak{z} i.
Powdered Muriate of Ammon.,	\mathfrak{z} i.
Lard,	\mathfrak{z} iiss.—Mix.

This serves for four inunctions, and the patient must be rubbed every night, and the inunction continued, even after the disease has disappeared, in smaller quantities.

To the external, the internal use should be conjoined—also combined with the White Hellebore, as follows :

R. Flowers of Sulphur,	\mathfrak{t} ss.
Powdered White Hellebore,	\mathfrak{z} ii.
Nitrate of Potash,	\mathfrak{z} i.
Soft Soap,	\mathfrak{t} ss.
Lard,	\mathfrak{t} iiss.
Oil of Bergamot, gtt.	xxx.—This is more

efficacious, but more irritating ; or—

R. Flowers of Sulphur,	\mathfrak{z} ss.
Borate of Soda.	
Muriate of Ammonia, each	\mathfrak{z} ss.
White Præcipitate,	\mathfrak{z} i.
Simple Ointment,	\mathfrak{z} i.—Mix.

Another mode of employing Sulphur in the diseases of the skin, is in the form of Sulphurous Fumigations.

This practice introduced by Dr. Gales, of Paris, in the treatment of Scabies, and he was led to it, by the fact, of the disease having its origin in animalcule, and Sulphur applied in the state of Sulphurous acid gas, would be much more efficacious.

Various plans of applying the fumes were employed, subjected to many objections. They have all yielded to the more convenient, and efficacious method, of having a bath, or fumigating chamber made perfectly tight, into which the Sulphur is introduced, after having been volatilized outside. The patient being seated naked within, has his body completely surrounded by the fumes, the head being the only part freed from their action.

The forms of disease which have been found to yield to this treatment, are Scabies, Herpetic affections of one and two years continuance—Herpetic ulcers connected with a scrofulous habit—Paralysis, glandular swellings, chronic rheumatism.

The success which attended the application of the fumes of Sulphur, was confirmed by a report of the committee of the most distinguished physicians of Paris, and the beneficial effects which have been conferred upon the human race, by its introduction into camps, and hospitals, has been truly great.

Sulphur combined with the *alkalies*, forming *Sulphurets*, is much employed in the treatment of cutaneous diseases. It is used as a wash in Tinea Capitis, or Scald Head, a complaint common and obstinate, according to the following formula:

R. Sulphuret of Potash, ʒi. to ʒii.

Water,

ʒ viii.

The head is first to be well washed with soap and water, and the wash applied twice a day—Very obstinate cases have been speedily cured after this manner.

The Sulphurets are also employed in the form of baths in the treatment of cutaneous diseases. In the form of bath they are much esteemed, and the practice is at present in much repute in Europe, being employed in all the large cities of France, and in the charitable institutions of that country.

For the preparation of the bath, vide Dispensatories.

Employed also in the treatment of *Ring Worms*, herpetic affections, obstinate cutaneous diseases.

Employed also in the *Cachectic* diseases of children—in enlarged and indurated conditions of the lymphatic system, in scrofula, rheumatism.

Thus employed, it improves the condition of the skin, gives to it softness—developes its tone, and vital energies.

Sulphur is useful in the form of *Mineral Waters*—Sulphur springs are very abundant, and are known by their offensive odor, are clear when the water is taken up, and emit air bubbles.

Smell strong, sulphurous and foetid.

Taste nauseous, and bitter.

They are useful in cutaneous affections, and in scrofula, and are employed externally, and taken internally.

They have also been recommended in bilious complaints, dyspepsia, general want of action in the alimentary canal, and in calculous cases.

They are useful in all those cases which require purgatives, and which are benefited by Sulphur.

The quantity drank is from a pint and a half to 4 pints, at moderate intervals.

Official Preparations—Sulphur Præcipitatum, or Lac Sulphuris, or Milk of Sulphur—Preparation.

Carbonate of Magnesia.

First employed by a canon at Rome, in the early part of the 17th century, under the name of Magnesia Alba, or Count Palma's powder.

It was a secret in the possession of a few persons, until its properties were made known by Lancisi, in 1717, and afterwards by Hoffman, in 1722.

It is found in the Inorganised kingdom—native, in sea, and mineral waters, in combination with various acids.

In the organised kingdom—found in some vegetables, as Salsola Kali—In animals, as in the urine, and in urinary calculi.

Obtained most commonly from sea water, from the Bittern after the separation of common salt—Also, from a mineral called Dolomite.

Properties—very light—consists of water, carbonic acid and magnesia—the two former in large proportions, not less than 55-100 per cent, as proved by calcination.

Magnesia, an article of much utility in medicine, but uncertain in its operation, its activity depending upon its meeting with an acid in the stomach—When an acid exists, a neutral salt is formed, and a purgative operation takes place—When there is no acid, there is no action.

Carbonate of magnesia is an objectionable article in many cases—In consequence of the disengagement of carbonic acid in the stomach, it is productive of unpleasant symptoms, as flatulency, griping, and other uneasy sensations, particularly in weak bowels. On this account the calcined magnesia is preferred, particularly when it is administered to children.

The calcined magnesia is prepared by exposing the carbonate to heat for a certain time, by which the carbonic acid is driven off, and the article is in a state of purity—Equally purgative when given in half the former dose—It is deprived by this process of many disagreeable qualities, and acquires others which give to it additional value.

In children, becomes particularly valuable, in consequence of the prevalence of acidity in the first passages, by which they are distressed with cramps and colic pains. This article in these cases is eminently useful, and should always be given in the state of calcination, otherwise it may aggravate the symptoms it was designed to cure.

With it several preparations are made, which are much resorted to for the relief of many of the symptoms of intestinal derangement.

They are Dalby's Carminative, the formula for which may be seen in Paris's Pharmacologia.

Another formula recommended by Dr. Dewees, as follows :

℞. Calcined Magnesia,	ʒi.
Water,	ʒi.
Tincture of Assafoetida,	gtt. lx.
Laudanum, gtt.	xx.

The dose is twenty drops—if not relieved, to be repeated in an hour or two.

Magnesia is employed in the treatment of Calculous complaints with great benefit—Of its use in these cases, I shall speak on a future occasion.

The dose for a Cathartic operation is ʒss. to ʒii., given in water or milk.

The habitual, or long continued use of magnesia, has sometimes occasioned distressing symptoms from its retention in the bowels—It is found accumulated in the colon.

Useful as a counter poison where the mineral acids have been taken in large quantity, either by accident or design. It combines with the acid, deprives it of its acrimonious properties, and is converted into a saline substance by no means deleterious.

NEUTRAL SALTS.

THEY hold an intermediate station in their operation, between Laxatives and Purgatives. They are employed for evacuating the contents of the bowels. This is done by exciting the exhalents of the intestines to pour forth a large secretion, by which the system is depleted—Hence their use in excited states of the system, reducing action and lessening inflammation, and from this operation they are called “cooling medicines.”

Sulphate of Soda, Glauber's Salt.

It is procured from the residuum of several chemical processes, particularly after distilling muriatic or hydrochloric acid, from the chloride of sodium by sulphuric acid.

It is a very common and useful cathartic. It contains much water of crystallization, which evaporates upon exposure to the air—hence it is termed an efflorescent salt. When the water is evaporated, half of the usual dose is sufficient.

This salt is more nauseous than the other saline preparations, but it is also more active—No method of disguising its taste, but it is less disagreeable by being taken in a small quantity of fluid—It is also less active—The energy of saline substances seems to depend upon their being dissolved in a large quantity of fluid—Hence the activity of Seidlitz powders, of sea water, of mineral waters generally.

Formula for the administration of this salt :

R. Glauber's Salts, \mathfrak{z} ii.
 Antimony Tart., grs. i.
 Lemon Juice, or
 Vinegar, \mathfrak{z} i.
 Water, \mathfrak{z} viii.—mix—Jose \mathfrak{z} ss. to \mathfrak{z} i.,

every two hours until it operates.

Sulphate of Magnesia.

Found native—and obtained by evaporating waters which hold it in solution, as Epsom springs in England—hence the name applied to the salt—also from sea water, and from a mineral called Dolomite.

This article is mild in its operation, and agrees well with the stomach. Sulphate of Soda sometimes substituted for it—The fraud readily detected.

Enters into the formation of the black draught.

R. Sulphate of Magnesia, \mathfrak{z} ss.
 Infusion of Senna C., \mathfrak{z} iss.
 Tincture of Senna, \mathfrak{z} i.
 Syrup of Ginger, \mathfrak{z} i. m. as a purgative draught.

Phosphate of Soda has lately been introduced, and is less unpleasant to the taste than the other salts, being a good substitute for them—particularly when there is any tendency to nausea. It possesses no particular advantages—Preparation.

Tartrate of Potash and Soda, or Rochelle Salt—Preparation—Most agreeable of the saline preparations, but less active, requiring a larger dose.

Sulphate of Potash—Sal Polychrest—Vitriolated Tartar—Preparation—Not very soluble, and is seldom employed, but in combination with other cathartics, as Jalap, Rhubarb, the operation of which it promotes, as already mentioned.

To the taste it is rather bitter, and acts as a gentle cathartic in the dose of \mathfrak{z} ii.

Of other Neutral Salts—the Bi-Tartrate of Potash, the Nitrate of Potash, &c., I shall speak under other heads, where they can more properly be introduced.

MINERAL WATERS.

THOSE particularly noticed, remarkable for the saline impregnations, being an agreeable form of administering purgative medicines.

They have been known to mankind from great antiquity, and were employed externally and internally for the prevention and cure of diseases. Homer speaks of tepid and cold springs—the Asclepiadeæ

erected their temples in the neighborhood of Mineral Waters, Hippocrates speaks of them, and Pliny notices their medicinal properties.

General observations upon the composition of Mineral Waters.

The small quantity of active ingredients they contain—their number—their extensive dilution.

The gaseous substances which are combined in a mineral water, are deserving of much consideration. The precise operation of these agents is not well known, but the effects of a gaseous water are more powerful, in proportion to the suddenness of the expulsion of the air, and therefore to the looseness of its adhesion to the water, with which it is combined.

The Mineral Waters alone brought to notice, remarkable for their saline impregnations, and of which imitations are made, or rather attempted.

Seidlitz Salt—the product of a spring near Seidlitz, in Bohemia—the water was long neglected by the inhabitants, until it was brought into notice by Hoffman.

The taste of the water is very saline and bitter, but not acidulous or brisk.

From analysis, its principal active ingredient is Sulphate of Magnesia, and to this is owing its bitter, saline taste, and purgative property.

The quality of the water is similar to that of the Epsom spring in England, as ascertained by Hoffman.

The effect of this water is in a high degree purgative, greater than might be supposed from the quantity of active ingredients.

The salt is obtained at the spring by evaporation and crystallization, and sold as the Seidlitz salt.

The popular draught from the Seidlitz powders, made in imitation, has no property at all to be compared. It is composed of two different powders—one contained in the white paper, consists of

Tartrate of Potash and Soda, or	
Rochelle Salt,	3 ii.
Bi-Carbonate of Soda,	℥ii.—make a powder.

That in the blue paper, of

Tartaric Acid, grs.	xxxv.
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They are dissolved in separate vessels containing small portions of water, one which has been sweetened, and drunk during the effervescence.

Sea Water is the strongest in saline matter, of all the natural waters. It contains by analysis, several distinct salts, as follows :

Chloride of Sodium.
Chloride of Magnesium.
Sulphate of Magnesia.
Chloride of Calcium.
Iodine, and
Bromine.

These proportions will vary somewhat, according to situation. A

pint is a dose, and it will, in general, remain upon the stomach, unless it is very irritable, and prove purgative.

It can be persevered in a considerable time without debilitating the stomach and intestines, or impairing the digestive powers. When used for its purgative operation, it should be brought several miles from the shore, from the sea.

It is not so much employed internally, as in the form of baths, &c., in weak habits, and in scrofulous constitutions. Its powers in this respect have been long extolled by Dr. Russell, and others, and it is the common practice in England to resort to various watering places on the sea shore, to enjoy the benefits of sea bathing, and the internal use of the water.

The efficacy of sea bathing has of late attracted the attention of our community, and it is considered a very important therapeutical agent in many chronic diseases, particularly when the digestive organs are concerned. It may be used according to the strength of the patient, in the form of cold or warm bathing, and in either manner employed, has been found very efficacious in restoring the tone of the digestive organs, and promoting the healthy operations of the system. The stimulus of the salt bath on the skin, will be much aided by the flesh brush.

Another mineral water which furnishes us with a purgative salt, is *Cheltenham* water, though it possesses also chalybeate properties.

It contains the following principles :

Sulphated Soda.

Sulphated Magnesia.

Chloride of Sodium.

Muriated and Carbonated Magnesia.

Selenite.

Oxyd of Iron.

Carbonic acid gas, a large quantity.

From this analysis, it is decidedly saline.

It is also chalybeate.

Contains much carbonic acid.

Cheltenham water will not keep well, the active principles being precipitated. The water is evaporated at the springs, and the salt is obtained by crystallizing. A moderate dose operates effectually as a cathartic, and also in a very gentle manner. It is imitated by the apothecaries, and a factitious powder prepared, composed of the

Sulphate of Soda.

Sulphate of Magnesia.

Chloride of Sodium.

Sulphate of Iron.

This compound is inferior to the imported article, but still active in a small dose, from the mixture of salts.

This water, as drank at the spring, is useful in persons laboring under hepatic derangements from long residence in hot climates, also in scorbutic affections of the skin.

In the United States, the principal saline mineral waters, are those of *Saratoga* and *Ballston*, in the State of New-York.

Ballston spring water—

Carbonic Acid Gas.
Chloride of Sodium.
Chloride of Calicum.
Chloride of Magnesium.
Carbonate of Lime.
Carbonate of Magnesia.
Carbonate of Iron.

Congress water contains—

Carbonic Acid Gas.
Chloride of Sodium.
Hydriodate of Soda.
Bi-Carbonate of Soda.
Carbonate of Lime.
Carbonate of Magnesia.
Carbonate of Iron.
Hydro-bromate of Potash.

The Carbonic Acid Gas is a very important principle, to which many of the properties of the water are owing.

It holds the Iron and Salts in solution—gives to the water its agreeable, pungent, and subacid taste—excites exhilaration of spirits, &c.

To the Chloride of Sodium, or common salt, its purgative properties are owing. That a substance with which we are so familiar, should be so powerful a cathartic as the Saratoga water is known to be, would appear surprising. The activity of the water much augmented by the combination of salts.

The Iron is another important ingredient.

These waters are adapted to diseases which proceed from a disordered state of the alimentary canal, from obstructions of any of the viscera—of the biliary organs.

ENEMATA.

SUBSTITUTES for purging, and serve some important purposes.

They are useful to evacuate the rectum, but principally to promote the operation of cathartic medicines.

They cannot pass higher up than the valve of the colon, and consequently they can only act upon the large intestines—cannot supply the place of purgatives by the month.

Their preparation—Instruments described.

In purchasing a syringe, let it be large, the walls of the cylinder unyielding, and with a good leather valve.

Self-injecting Syringe—With this syringe the bowels can be distended with any quantity of fluid, so that by simple distension alone, any obstruction may be overcome. The advantages attending its use—can be administered by the person himself.

The pipe can be introduced under the bed clothes, and thus any exposure prevented. The same instrument used for evacuating the stomach of poisonous substances.

Other instruments—the Irrigateur of the French, one of the best for the purpose—the same explained.

When more powerful enemata required—Tobacco, in the form of infusion, or smoke—or a suppository of tobacco, or a cigar.

Cold or iced water, used to overcome obstinate costiveness—walking over a hearth barefoot, or throwing cold water over the thighs, and legs, have been productive of the same effect.

Enemata employed for other purposes—to allay irritation of the system, and of the Pelvic viscera—and through this channel often with great advantage.

The enemata used for this purpose, are of an anodyne character—Preparation—Employed in irritable conditions of the bladder or its neck—in the painful and spasmodic diseases of the Uterus—in the tenesmus of Dysentery.

In irritable conditions of the Stomach.

Enemata employed as vermifuges, when the worms are lodged in the lower intestines.

Enemata of Tobacco in Strangulated Hernia.

In Uterine and Intestinal Hæmorrhage, astringent glysters, and particularly iced water, are sometimes of powerful use, in checking these alarming accidents.

A solution of Assafoetida, or other anti-spasmodics, are often resorted to in Hysteria, and other complaints for which this class of remedies is employed.

Nutritive enemata are sometimes had recourse to, when from obstructions in the Oesophagus, nourishment cannot be conveyed into the stomach.

In cases of sudden collapse in Fevers, or other cases, where powerful remedies are required, and the powers of deglutition fail, there is no part to which stimulants may be more effectually applied, than to the rectum. They may be prepared with turpentine, or brandy and water, equal parts, with the greatest advantage.

SUPPOSITORIES.

USEFUL in relieving costiveness in infants, and in adults—They may be prepared with a piece of paper rolled up and oiled, or of hard soap cut into a cylindrical shape, and introduced into the rectum.

Or they may be formed of opium, or a pill of opium, for the purpose of acting upon the diseases of the rectum, or of the neighboring organs—Will be employed by patients to whom the use of enemata is disagreeable, or excites pain.

DIVISION 3.

Embraces those means by which we destroy or counteract morbid substances lodged in the Alimentary Canal.

ANTHELMINTICS.

It is well known to physicians, that in the human body there are found occasionally different species of worms. I shall treat of them as they differ in their habits, character and structure.

They are divided into two general divisions—the round and flat worms.

Under the first, are included—

1. The *Ascaris Lumbricoides*—the long round worm.
2. *Ascaris Vermicularis*—the maw or thread worm.
3. *Trichuris Vulgaris*—the long thread worm.

The *Ascaris Lumbricoides*, are of a round form, in length ten to twelve inches, and in circumference equal to a goose quill.

They infest the small intestines, but more frequently the course of the jejunum and ilium. Sometimes they are known to ascend through the duodenum into the stomach, and they have been seen to creep out of the mouth and nostrils. It is not often they are found in the large intestines, and then only after the exhibition of vermifuges. They are sometimes found in considerable numbers.

The sexes of the *Lumbrici* are distinct, and they are oviparous, the ovula being discovered in the mucous surrounding them in the intestines.

All the intestinal worms are oviparous, and they produce a considerable number of eggs. If all these eggs came to maturity, the diseases from this source would be exceedingly numerous, as well as dangerous. Several occurrences take place calculated to prevent their development. In short, it has been remarked by Rosin, that it is difficult for these worms to be abundantly produced.

This arises from the continued action of the intestinal canal, by which the eggs are carried downwards and expelled with the excretions. In addition, the different gases, with the substances found in the intestinal canal, suffice frequently to prevent their development, or to effect their destruction.

The uterus in this species of worm is very peculiar. It branches out into two large crura, which for the space of one or two inches are continued of an uniform character. They then suddenly become diminished in size, and appear like opaque threads lying on, and embracing in a convoluted manner the intestinal tube in the middle. This convoluted apparatus is composed of very fine transparent membranes, which is distended with innumerable eggs.

It is these opaque threads which are visible through the transparent coverings of the worm, and which, in common language, are considered as so many young worms.

2. *Ascaris Vermicularis*, *Ascarides*, maw, or thread worm, are on the

contrary very small, being in thickness of the size of a piece of thread, and when full grown about half an inch in length.

They are most commonly situated in the rectum, and when there, frequently pass out per anum.

They are also met with in the cœcum and colon, and have been found in the stomach, whence they have been called maw worm.

In the rectum of children or adults, they are generally in considerable numbers, but when in other parts their numbers are less considerable.

When discharged, they are extremely vivacious, and it is probably from this circumstance that the term *Ascarides* has been employed, from the Greek word *Askarizein*—to leap. The male and female are here also distinct, and not as generally considered hermaphrodite.

3. *Trichuris Vulgaris*, or *Trichocephalus dispar*, or long thread worm.

This worm is of rare occurrence, and it is only within the last half century that any notice has been taken of it, or any accurate description drawn. Its body, when full grown, equals in breadth the sixteenth of an inch, and in length nearly two inches. From the head proceeds a kind of proboscis, which the worm protrudes or withdraws at pleasure.

Description of the worm.

These worms have been found in the intestinum rectum, in the inferior part of the ilium, also in the jejunum, mixed with their contents.

Of the Flat worm, there is

1. The *Bothriocephalus Latus*—the Broad Tape worm.

It consists of a head, a chain of articulations more or less long, and a small round tail.

The head varies in size and shape from the *Tænia Solium*.

The articulations in this species are broader than they are long.

It is found in the small intestines of the inhabitants of Poland, Russia, Switzerland, and some parts of France, but it is not so generally met with as the *Tænia Solium*. It rarely exceeds eighteen or twenty feet in length, although they have been found longer.

Their color is generally a dusky white.

Another distinction of this worm is, that it seldom parts with its joints spontaneously.

Three, four, and even more of these worms have been found in the same person, but they seem to be peculiar to the inhabitants of the countries just mentioned, and where they prevail the *Tænia Solium* is not to be found, at least in the same subject.

2. *Tænia Solium*—Common Tape worm, also called the solitary worm.

From this circumstance a conclusion has been drawn, which seems to be established, that the smaller the worm, the more numerous they are found to be, and the larger, the less numerous; hence the above term.

This animal consists of a head placed at the smallest extremity, and a chain of articulations more or less broad or long, which gradually enlarge as they advance, and at length terminate in a tail formed by a rounded joint. Each of these joints contain their proper viscera, and they are very easily separated from each other while the animal is alive.

Each joint when detached has the power of retaining for a considerable time its living principle, and is called from its resemblance to the seed of the gourd, *Vermes Cucurbitinus*. The separated joints do not appear capable of retaining their situation for any length of time, but are soon forced down the intestinal tube, and at length creep out, or are expelled per anum.

It has been conceived that these *Vermes Cucurbitinæ* have the power of forming fresh joints, but this opinion is not probable—the head alone having this property. Certain it is, that when the whole is voided except the head, in a short time after fresh joints are formed, and the patient is as much troubled with the worm as before.

The *Tænia* are always found in the jejunum and ilium, occupying their whole length.

The small intestines would seem to be the natural residence of this worm and the *Lumbricus Intestinalis*. Should their residence be made uncomfortable, they are readily removed from the system, either by vomiting, when they creep into the stomach, or with the discharges of the bowels, when they pass the valve of the cæcum.

The origin of worms is still buried in much obscurity. All that we know certainly, is, that whenever a nidus is formed favorable to their production and growth, there we see them generated and supported.

There are many circumstances predisposing to their production—Climate—more abundant in moist and cold, and in moist and hot countries. Examples—Season also predisposes—more common in summer and in the autumn.

Diet predisposes—common in countries where fruit and pulse, or beans, are much eaten.

Particular states of the alimentary canal favor their production.

They occur in all habits—the feeble and the robust—in children and adults—Found chiefly in children, with weak digestive organs and feeble constitutions, a state of body favoring the production of much mucous.

Are worms a primary or accessory cause of disease? They are both.

They become a primary cause when their number is increased to such a degree, as to disturb the regular operations of the system, producing such a degree of irritation that the natural sympathies are awakened, or probably from a misplaced situation of the worm itself. Under these circumstances the diseases will be found as numerous and diversified as are the sympathies of the intestinal canal with the various parts of the body.

A train of nervous and convulsive diseases are excited by this cause—also dysentery, remitting fever, chronic and spasmodic cough, cynanche trachealis.

Thus is exhibited a striking instance of the influence of one exciting cause in bringing into action a variety of diseases according to the predisposition of the individual. This, you observe, varies in different persons, and hence such a diversity in their diseases.

If worms are capable of producing the disturbances in the system I have mentioned, they are capable of producing a Fever, several cases of which I have seen in practice. I would caution my hear-

ers, that these cases are of less frequent occurrence than is commonly supposed, and that great mischief is sometimes done by treating the disorders of children as worm cases, which are really not so. Popular prejudice is too apt to attribute to the existence of worms the diseases of children.

Dr. Hunter, we are told, dissected great numbers of children, who had been supposed to die of worm fever, and whose complaints were of course treated as proceeding from worms, in whom, however, there appeared on dissection to be not only no worms, but evident proofs of the disorders being of a different character.

Worms are capable of producing a fever I have already stated, and as it is not of very frequent occurrence, its symptoms may be mentioned in this place.

The worm fever of children described.

Symptoms by which the presence of Lumbrici may be discovered. These may all be referred, in a greater or less degree, to intestinal irritation—and they are pains in the abdomen, itching in the nose, vomiting, looseness of the bowels, intermitting pulse, epileptic convulsions, &c.

Diseases produced from a misplaced situation of the worm. Examples—Cynanche Trachealis, or Croup, Spasmodic Cough, even sudden death.

Besides the intestines, worms are found in other parts of the body—In the integuments—the bronchial glands—the kidneys—the fat surrounding the ovaries—the cellular tissue—in the muscles—the brain—the uterus.

PARTICULAR ANTHELMINTICS.

THE articles of the class have been differently arranged by different writers. By some, as their action was chemical, mechanical, or of a cathartic character.

I shall arrange them according to the worm they are best calculated to remove, beginning with the articles adapted to the expulsion of the *Ascaris Lumbricoides*.

Family *Gentianæ*—*Spigelia Marylandica*—*Indian Pink*—Pink root.

Description of the plant.

Roots fibrous and perennial.

Stem herbaceous, six to twenty inches high.

Leaves sessile, ovate, lanceolate, acute.

Flowers, a simple secund raceme, yellow within, crimson without.

Every part of the plant is active—the root more so than the leaves.

It has long been celebrated for its Anthelmintic property, and was first recommended in the Edinburgh Physical and Literary Essays, by the late Dr. Garden, of this city.

It well sustains its reputation.

It operates by virtue of a narcotic quality, in consequence of which it exerts a poisonous and debilitating influence on the worm—so that upon the administration of cathartic medicines, they are readily removed from the system.

When given in large doses, it exerts a deleterious influence upon the human system, and this is exerted upon the brain and nervous system.

Never known these effects produced to an alarming degree, nor when exerted, are they difficult of removal.

Administration—In powder combined with calomel, or other cathartic, and thus combined its narcotic effects are seldom observed.

Dose for a child, v. to x. grs.

For an adult, ʒss. to ʒi.

In infusion, it is equally efficacious, and more readily taken—Preparation of the infusion for children :

℞. Root of Spigelia, ʒii.

Boiling water, 1 pint and a gill.

Simmer until reduced to a pint—Sweeten with sugar or treacle, and drink in divided doses in twenty-four hours.

To be followed by a cathartic of castor oil.

In the form of syrup, prepared by adding to a strong infusion sugar or treacle, and reducing to a proper consistence.

Spigelia combined with the leaves of Senna and Savin, often with advantage.

Besides the anthelmintic property, it is adapted to the Febrile diseases of children, unaccompanied with worms—Exercises an excellent febrifuge operation, and affords much satisfaction.

Family *Meliaceæ*—*Melia Azedarach*—*Pride of India*—Poison berry tree.

The tree a native of the Island of Japan, but has been naturalized in this country.

It is possessed of strong anthelmintic properties—has been spoken of in high terms by different practitioners, and is much employed by the planters of our State.

The root is the part employed, and it is best administered in the form of decoction.

Manner of preparing—The outer covering of the root is scraped off, and about ʒiv. of the bark is boiled in a quart of water, until it acquires the color of strong coffee, or until it is reduced to a pint. The dose is ʒss. to ʒi., every two or three hours, until it operates, or it may be given in the quantity of a tea-cupful for several evenings, and a cathartic then exhibited.

The pulp which invests the stone of the ripe berries also useful, and they may be taken in the quantity of a gill during the day, rejecting the kernels—Cases of its efficacy related.

All parts of the tree vermifuge, and it is noted as being clean, or remarkably free from insects.

This article, like the preceding, is also possessed of febrifuge properties.

Family *Chenopodeæ*—*Chenopodium Anthelminticum*—Jerusalem Oak.

Description of the plant.

Root perennial.

Stem herbaceous, erect, furrowed, four to six feet high.

Leaves alternate, nearly sessile, glabrous, strongly veined.

Flowers in spikes, which towards the summit of the branches are densely crowded.

This plant a native of South America, but has become naturalized in this country.

Useful anthelmintic, all parts of the plant being active, the seeds in the highest degree.

It is exhibited in the form of expressed juice of the plant, or the seeds powdered, and given enveloped in mucilage, or the oil separated from the seeds.

Administered in any of these forms, has been useful after other articles have failed—and after being employed for several days, to be suspended, and a cathartic exhibited.

Dose of the expressed juice, a table-spoonful.

Of the powdered seeds a tea-spoonful.

Of the oil, v. to x. and xx., m.

The objections to the oil, are its unpleasant taste and smell—if these could be corrected, would be introduced into very general practice.

Formula for the administration of the oil :

℞. Oil of Worm-Seed,	ʒiss.
Castor or Olive Oil,	ʒ ii.
Honey,	ʒ ii.

Dose—a tea-spoonful for a child one or two years old, night and morning, gradually increased to three or four.

Family *Leguminosæ*—*Gcoffræa Inermis*—Cabbage tree bark.

This tree, of which the bark is used as a vermifuge, is a native of Jamaica, and the other West India Islands. It is spoken of by the physicians of those islands as an anthelmintic of great power and efficacy, but it is little employed in this country.

Family *Leguminosæ*—*Dolichos Pruriens*—Cowhage.

A climbing plant growing in the West Indies. It produces pods thickly beset on the outside with stiff hairs, which, when applied to the skin, occasion a most intolerable itching. It has been employed in the treatment of worms, the part used being the hairy spiculæ obtained by scraping them from the pods, and mixing with syrup.

Their operation is mechanical on the worm, and they inflict little injury to the mucous membrane.

They have been spoken of very favorably by the practitioners of the West Indies, but seldom resorted to in this country.

But though there are sufficient proofs of its efficacy, doubts have been entertained of its safety. These objections entirely theoretical.

That their operation is mechanical, is proved from this circumstance, that they have been given in tincture and decoction to worm patients, without any sensible advantage.

The dose of the Cowhage mixed with syrup, to the consistency of an electuary, is a tea-spoonful to a child, and a table-spoonful for an adult, repeated in the morning and evening, for several successive days, followed by a purgative dose. This remedy, though interesting from its character, seldom resorted to in this country.

Family *Laurineæ*—*Camphor*.

Among the remedies for *Lumbricoides*, this article has been held in much estimation—Spoken of very favorably by Professor Brera, and the Italian physicians. It is administered in the form of mixture, as follows :

R. Camphor, ʒss. to ʒi.
Mucilage Gum Arab., ʒ viii.

Dose—ʒ ss., frequently repeated. The advantages of camphor, that it not only removes worms, but prevents the development of the ova.

Cathartics have been employed for the expulsion of worms, and not being very tenacious of life, are easily destroyed and evacuated by their use. Those employed are Calomel, Jalap, Hellebore, Scammony, Aloes, Chloride of Sodium, or Common Salt.

Proto-Chloride of Mercury—*Calomel* is administered in a large dose at bed time, and removed from the system the next morning, with castor oil, or other cathartic—or repeated at short intervals, in order to remove such worms and ova, as have been screened from the preceding dose, by the folds of the intestines, or by mucus.

Combined also with Jalap—a common ingredient in all the nostrums advertised for the cure of worms, and a useful auxiliary to other vermifuges.

Chloride of Sodium, or Common Salt. The use of this article is very ancient and common in some countries. The value of salt, as an anthelmintic, may be inferred from the practice in some countries, of compelling criminals condemned to death, to live upon a diet without salt—Multitudes of worms being thus produced, from which death was ultimately the consequence.

In his own practice, Dr. Rush says, that he has administered many pounds of salt, colored with cochineal, with great success in destroying worms.

The formula is as follows :

R. Chloride of Sodium, ʒ ii.
Cochineal, ʒ ii.—Mix for a powder.

The dose ʒss. to ʒi., given in the morning on an empty stomach.

Family *Pinaceæ*—*Cedar Apple*—An excrescence from the *Juniperus Virginiana*, or Red Cedar, produced by the puncture of an insect of the bark, or young branches—History of its discovery.

The *modus operandi* seems to be by virtue of the bitter, and probably Terebinthinate principle which it contains, proving a poison to the

worms, and also by its tonic powers, overcoming that condition of the alimentary canal upon which their generation is supposed to depend.

Forms of administration—In powder, decoction, and in its green state, as plucked from the tree.

Dose of powder, grs. x. to xx., three times a day, and this pursued for a week.

In decoction, a tea-cupful several times a day.

As plucked from the tree—an apple for every year of the person's age, and this continued for nine mornings, in succession, fasting.

Family *Asteraceæ*—*Artemisia Santonica*—The Worm-seed of Europe.

It is the product of a plant growing in Persia, Asia Minor, and other Eastern countries. The seeds, but more properly the small globular, unexpanded flowers of the plant, mixed with their broken peduncles, have been much celebrated as a vermifuge.

They are given in powder and infusion.

The dose in substance is x. to xxx. grs., repeated morning and evening, and followed by a cathartic. They are much employed, particularly by the German population of this country.

Completing the consideration of the remedies for the long round worm, we will proceed to those of another species of this class, viz: the *Ascaris Vermicularis*, or *Ascarides*.

Their size is about half an inch in length, and their seat usually the rectum.

Symptoms of their presence—An uneasiness of the part, and an intolerable itching in the anus, which usually comes on in the evening, and prevents sleep for several hours.

This is attended with swelling in the rectum, internally and externally, with tenesmus and mucous dejections. They are found in the bed-clothes, or discharged with the alvine evacuations.

The general health of the patient is not much impaired by their presence; and this species, though among the most difficult of cure, is the least dangerous of all.

They are difficult of cure, in consequence of their tenacity of life, and by burying themselves in the mucous of the first passages, they resist the action of medicines. It is this which preserves them unhurt, though surrounded with many other substances, which would be fatal. Whatever will lessen the quantity of this mucous, will not fail to relieve the patient—Purgative medicines employed for the purpose.

Those are the best which operate with sufficient activity, without enfeebling the patient to such a degree, but that a repetition could be borne.

Mineral waters containing much saline matter of this sort—Jalap mixed with sugar—Cinnabar with Rhubarb, of each ʒss. is useful, as it never fails to bring away mucous as transparent as the white of an egg, and in this many *Ascarides* will be found.

Calomel, also, with much confidence of success—*Aloes*, and its preparations, as its action is chiefly on the rectum.

The Compound Tincture of Aloes is one of the best for this purpose, the dose being ʒii. to ʒss., night and morning, in a little water—or the Hiera Picra, ʒi., dissolved in a pint of spirits—the dose ʒii. to ʒss.

Enemata or *Glysters*, also useful, and even necessary, from the tenacity of life which these worms exhibit, and from their being seated far from the mouth, medicines have little effect upon them, further than as they evacuate the contents of the rectum in common with the other viscera.

The enemata most approved, are Aloes, ʒi. to ʒii., dissolved in a pint of new milk—A weak infusion of Tobacco—a solution of Assa-fœtida—Lime water—Olive oil—Camphor.

This last, dissolved in olive oil, will be found very beneficial in allaying the violent itching, and other painful symptoms of the anus. It gives immediate ease, and stays all night—Discharged in the morning, and with it many dead worms.

Solutions of salt—tepid milk well salted—Spirits Turpentine, enveloped in mucilage, have been employed.

With these, the rectum should be filled, but not distended, otherwise it would be expelled.

The operation should be repeated for a few successive days, when it seldom fails to remove, for a time, the *Ascarides*, and the symptoms they produce—Proper also to administer a cathartic.

A case related, detailing the symptoms connected with the *Ascarides*, and the treatment pursued.

The Third, species of round worm—The *Trichuris Vulgaris*, or long thread worm.

This of rare occurrence, and as there is no peculiarity of symptoms attending its presence, the same treatment may be adopted, as for the *Lumbricus Intestinalis*.

Of the Flat worms—

Tænia or *Tape Worm*—One of the most difficult to be removed from the body. The reason of its being so difficult to expel is, that though portions are apt to break off and be discharged, it is endowed with a power of reproduction, so that the patient is little or nothing better.

Of the anatomy of the *Tænia* little is known.

Symptoms of the presence of this worm, similar to the foregoing—the most characteristic are, pain in the abdomen, weight in the side, pickings or bitings in the region of the stomach, with the evacuation per anum of small substances resembling the seeds of the gourd—or *Vermes Cucurbitini*—Remedies.

Family *Filices*—*Polypodium Filix Mas*—Male fern.

Natural History—Native of Europe—The root the part used.

Properties—mucilaginous and sweet, afterwards astringent and bitter.

The root is large, firm, and covered with thick brown scales, placed in an imbricate order, and furnished with many long tough fibres.

Very ancient remedy, and had fallen into neglect until the latter part

of the last century—revived by Madame Nouffer—Her remedy being the root of this plant, gathered in the fall, and reduced to a very fine powder.

Dose— ℥ iii. of the powdered root, mixed with ℥ iv. to ℥ vi. of water, taken in the morning—For children less.

If nausea is produced by taking the medicine, endeavor to relieve it—if rejected, it must be repeated as soon as the sickness is gone off—To be followed by a cathartic of a drastic character. The efficacy of this practice confirmed by others.

The root may be given in the form of decoction—used also as an extract—Preparation.

Dose of extract—xviii. to xx. grs., given at bed-time, and the same quantity in the morning, fasting—so that on the administration of a cathartic, the parasite has been discharged, often in the form of a ball.

Family *Coniferæ*—Oil, or *Spirits of Turpentine*.

One of the best remedies in the treatment of this, and other intestinal worms—The earliest mention made of it.

Given in large doses, from ℥ ss. to ℥ i. and ℥ ii., and its exhibition is usually followed in a few hours by a considerable cathartic operation, and a discharge of *Tænia*.

The principle upon which its virtues depend, does not seem to be distinguished by the true cathartic character. The medicine has the power of resisting absolute decomposition, by the assimilating operations of the organs of digestion, passes along the intestines in a great measure unchanged, and may be observed floating upon the surface of an evacuation—It comes in contact with the worm, and by a specific property deprives it of life.

In large doses it is less apt to disturb the bladder than in small. The constitutional symptoms produced by its use, are—giddiness to a great degree, which subsides with a cathartic operation.

This medicine affords relief to the painful feelings which were believed to originate in the presence of the worm. Cases might be cited of the beneficial effects which have been exhibited by the Oil of Turpentine.

Carbonate of Iron—Carbonate of the Protoxyd of Iron—*Rubigo Ferri*—Rust of Iron.

A safe and certain remedy—Has been given from ℥ ii. to ℥ ss. every morning, for three or four days, not only with safety, but success—Administered in treacle, or jelly, and taken as soon as mixed.

Cathartics of a drastic character—Gamboge given in doses of xx. grs., morning and evening, mixed with a little sugar and water—repeated on the second or third day.

Other remedies—as bark of the root of Pomegranate, Tin, Arsenic, *Assafetida*.

Family *Myrtaceæ*—*Punica Granatum*—Pomegranate.

Has been recommended as a remedy for *Tænia*, and a number of cases stated as cured by its use.

Given in the form of powder and decoction. Dose of the former viii. to xx. grs., two or three times a day—In decoction, prepared as follows :

Bark of the root of Pomegranate, \mathfrak{z} ii.

Water, 1 pint and a half—boil to 1 pint.

Dose— \mathfrak{z} ii. every half hour until the worm is expelled.

If of greater strength, it excites nausea and griping—affects the nervous system—producing vertigo, tremblings, the sensation of intoxication, &c.

In the treatment of worms, we must not confine our attention to the mere expulsion of the worm, but endeavor to give tone to the stomach and bowels by the use of Tonics, so as to prevent their reproduction.

DIVISION 4.

ANTACIDS.

DIVISION 5.

Medicines which promote particular Secretions.

(a.) Of the skin.

DIAPHORETICS.

SHALL premise my remarks upon Diaphoretics, by a short account of the nature and importance of perspiration—It may be Insensible and Sensible—The former may be demonstrated by holding a highly polished metallic surface to the skin, when a watery vapor collects upon it and clouds it. When increased, it becomes sensible, and is denominated sweat. It is the same kind of fluid as the insensible perspiration—very small particles are observed on the skin, and they unite in larger drops. The causes—The quantity—Not easily ascertained, but may be supposed to be very considerable, when we consider the extent of the exhaling surface, and the rapidity of its reproduction. Sanctorius's computation in the climate of Italy—Less in other climates—Dr. Lining's calculation. The ordinary quantity in twenty-four hours in one of good health, is iii., iv., or v., pounds.

The quantity determined by enclosing the body in a silk bag, rendered impermeable to moisture, by being varnished with Caoutchouc, and having only one opening for the breathing, the sides of which were carried round the mouth.

The nature of the secretion—in a great measure aqueous, holding in solution several salts, the excrementitious matter of animal substances, and sometimes acids. It possesses sensible properties.

Definition of Diaphoretics—divided by some writers into Diaphoret-

ics and Sudorifics ; but, as in the medicines arranged by authors under these titles, we can find no difference, but in the degree of activity, or what arises from the manner of administration, we may comprehend the whole under the title of Diaphoretics.

The importance of this secretion may be judged of, from the uneasy feelings produced by its suppression, and from the number of diseases which originate in, or are aggravated by an interruption of the free discharge.

The action of Diaphoretics may be arranged under three heads.

1st. Those which operate by exciting the action of the heart and arteries.

2d. Those which operate by producing a relaxation of the extreme vessels.

3d. Those which are local in their operation, or which are applied to the surface of the body.

Under the first Division is included all the stimulating Diaphoretics—the blood by their operation being sent more forcibly into the minute vessels, and the secretory process thereby promoted. They produce their good effects in disease by *depletion* and by *revulsion*.

Every stimulant may, to a certain extent, produce these effects ; but the stimulating Diaphoretics have the additional property of giving increased activity to the perspiratory vessels.

But if the Cutaneous vessels are already much excited, stimulating the arterial system will not accomplish our object—hence another class of remedies is, therefore, called into requisition, viz :—Such as produce relaxation—and this class operate by their action upon the stomach, producing nausea. The sensation of nausea is accompanied by feelings of depression, languor, indisposition to motion, with diminished vascular action. Diminished vascular action, by lessening the excitement of the skin, removes the constriction of the surface, allows perspiration—hence they are said to produce relaxation.

The medicines of this class are, the Antimonial, Saline Diaphoretics, small doses of Ipecacuanha, and cold water. The last operating by bringing down the excitement to the secreting point.

External remedies.—That these means should be efficacious, we should attend to the condition of the skin. If already excited, any additional excitement will postpone the desired result—will rather impede, than promote the sudorific process. Hence, in excited states of the skin, and system, a contrary class of remedies will be required, as cool air, cold drinks, the cold affusion. These would be the proper sudorifics. We owe much to Dr. Currie, and from him the practice of sponging, and the cold affusion, has been introduced in Fevers.

When there does not exist this excitement, *warmth* to the surface contributes to the free performance of the secretory process.

We have frequently noticed the advantages which arise from medicinal combination. They are not less conspicuous here. Examples—The union of the two classes, viz : a stimulant and relaxing Diaphoretic, more certain in their operation than either class singly. The articles entering into the composition of Dover's powder, furnishing us an instance of this union. The primary effect of the opium, being to in-

crease the action of the heart and arteries, while that of the Ipecacuanha, or Antimony, by its nauseating and relaxing operation, to diminish the action of the surface, or to produce relaxation. Hence, while the circulation is increased, the skin is placed in a situation for the free discharge of perspiration. Another beneficial operation results—the sudorific being determined to the skin, prevents the unpleasant effects of opium on the brain, while the anodyne operation is obtained.

Other instances—as the combination of Tart. Antimony, with Gum Guaiacum, or Gum Guaiacum, Tart. Antimony and Opium—*vis unita fortior*.

Rules for the administration of Diaphoretics.

RULE I. During the exhibition of Diaphoretic medicines, it is most beneficial that the patient be confined to bed, and in some instances it is essentially necessary.

RULE II. The pulse and temperature of the skin, are to be carefully watched. If the pulse be active, or the heat very great, Diaphoresis cannot be induced until they have been lowered by venæsection, or other depletions, which should not be omitted unless contra-indicated.

This rule is of the utmost importance, since diaphoresis can never be advantageously excited, until the inflammatory action of the system has been reduced. The medicines of this class are, let it be understood, secondary remedies, and are resorted to when more vigorous means have failed, or cannot further be persisted in to subdue disease. When employed at a proper period, they are of the utmost benefit, since they not only act as evacuates, but by determining the fluids to the capillaries, they relieve the larger vessels. The strength of their impression will be adapted to the existing action, which they may change or subdue, while they will be wholly inefficient at an earlier period.

RULE III. While under the operation of a Diaphoretic, diluent drinks must be employed, unless the stomach be very irritable, or unless the antimonials have been exhibited, for in either case they may induce vomiting. The temperature of the drinks must depend upon that of the surface, for if the skin is very hot, cold drinks are preferable; if the skin is cold, and the system feeble, warm drinks are to be preferred.

RULE IV. After the perspiration has subsided, the patient's linen should be changed, and he should be removed to a dry bed, or a dry part of the bed. The clothes under such circumstances become highly offensive, and in addition, tend much to check the perspiratory process.

RULE V. Guard against a sudden suppression of perspiration. This rule is of great importance, whence it is often necessary to watch patients while asleep. I have more than once known relapses to take place from this cause, which had very near proved fatal. One instance in particular, occurs to my mind, in which a female laboring under a pulmonary affection, had her symptoms suddenly aggravated by the bed clothes falling off when asleep, and while perspiring freely.

RULE VI. Avoid Cathartics during the administration of Diaphoretics, for they may suppress perspiration by a revulsive action, and will render necessary a frequent exposure to cold.

RULE VII. Avoid, during the use of Diaphoretics, those medicines

which increase the secretion by the kidneys. These last directions are but little considered in ordinary practice, it being very common to hear of medicines being directed with a view to a cathartic and diaphoretic operation, or a diuretic and diaphoretic action. Physicians too often flatter themselves, that they can accomplish more than is compatible with the laws of the animal economy. The functions to which I have reference, are always opposed to each other—whatever will excite one will diminish the other.

RULE VIII. When long continued perspiration is requisite, as in chronic rheumatism, flannel should be substituted for linen, next the skin; without this, it will be impossible to keep up a uniform and constant perspiration.

DISEASES IN WHICH DIAPHORETICS ARE USEFUL.

IN *Intermittent* and *Remittent* Fevers after proper depletion—These diseases terminate sometimes naturally by sudoresis, and these remedies seem indicated by nature to put a stop to the paroxysm.

The system should be prepared for them—its excitement reduced, and the alimentary canal evacuated.

When judiciously applied, they conduct the paroxysm to a close—they sometimes prevent its recurrence, and thus break the catenated motions on which the disease depends.

In *Continued Fevers*, they are equally necessary. It was the practice at one time, to give stimulating Diaphoretics, even in the most inflammatory fevers, confining the patient to a hot room, and preventing the ingress of fresh air. In this state, sometimes a profuse sweat breaks out, but it brings no relief, and does not diminish arterial action. In this, and all inflammatory diseases, venæsection, and other depleting remedies, should be used before we have recourse to this class of remedies, and even then, the milder ones are to be resorted to.

Diaphoretics have been much recommended in fevers, supposed to originate in contagion, as Small Pox, Measles, &c.

They are, doubtless, of service in these cases—no peculiar or specific action, and their use is to be governed only by the state of the system.

In the diseases of the *Alimentary Canal*—There exists a very intimate connection between the cutaneous capillaries, and those of the internal organs—and from the general effects of Diaphoretics, they must prove salutary in these cases. They are not only useful as depleting remedies, but act by revulsion, and thus determine from the seat of the disease. We observe, for example, Dysentery, Diarrhœa, and inflammation of the bowels, to ensue from the sudden suppression of perspiration; and, on the contrary, these diseases, from whatever cause they may arise, are almost always relieved by the cutaneous secretion taking place.

In *Catarrhal* affections, they are of the utmost importance, and in

all acute affections of the lungs. The relief is sensible and immediate. The cough, shortness of breathing, general uneasiness and distress, seem to be commensurate with the free discharge from the surface.

In *Rheumatism*—in acute cases preceded by venesection, purgatives, and, in general, their efficacy is increased by being combined with opium. In chronic cases more essentially necessary. The treatment pursued, is directed to a renewal of the energies of the cutaneous vessels, by clothing in flannel, flannel bandages, stimulating diaphoretics, alterative medicines, bathing, general and local, the vapor bath. The warm and hot springs of Virginia, very useful in exciting the secretory functions of the skin, and in restoring health. Description of these springs.

Diaphoretics useful in *Dropsies*—Treatment of these complaints by the Indians by means of sweat ovens.

Capt. Cook relates being cured of a dropsy in the South Sea Islands, by being buried up to the neck in warm sand.

STIMULATING DIAPHORETICS.

FAMILY *Papaveraceæ*—*Papaver Somniferum*—Poppy—Opium.

The Diaphoretic property of opium, intimately connected with the power of stimulating the action of the heart and arteries—Illustrations of its stimulating operation, from the custom of Eastern countries, and from its employment in the low stages of fever.

As a Diaphoretic, seldom used alone, but combined with Ipecacuanha, the Antimonial preparations, or the Sweet Spirits of Nitre. Formula—

R. Tincture of Opium, gtt.	xxv.
Antimonial Wine, gtt.	xxv.
Or Sweet Spirits of Nitre, gtt.	xl.
Water,	ʒi.

To be taken as a draught. Thus combined, it is useful in all cases where diaphoresis is required—as Catarrhal affections, or other cases.

In combination with Ipecacuanha, its best effects are exhibited, and applicable to many diseases. By this combination, its anodyne and diaphoretic operation are obtained, without any, or very little disturbance of the functions of the brain—Hence in all chronic diseases it is resorted to, with safety and advantage.

These enumerated—Its efficacy is improved by a union with the Sulphate of Potash. Its action may be purely mechanical, dividing and mixing the active particles more intimately, the success of the remedy depending much upon a minute division of the ingredients—constitutes the Dover's powder of the shops, in the following proportions :—Ipecacuanha, one part ; Opium, one part ; Sulphate of Potash, eight parts.

Can be employed in *Inflammatory diseases* after excitement has been reduced, without increasing the actions of the system. For though Opium may stimulate, the Ipecac. relaxes the surface, and free perspira-

tion is induced. While these actions progress, pain and irritation are relieved.

The powder should be taken at bed time, the body should be kept covered, and no drinks allowed until perspiration commences.

Combined with Calomel—By this combination we obtain not only a diaphoretic operation, but a purgative and alterative. Combined with Calomel, the objections which have been made to the employment of Opium in Inflammatory diseases are obviated. at the same time, by operating in the several ways mentioned, an *anti-inflammatory* operation is exerted. By this union we obtain a diaphoretic, or a purgative, or an alterative operation—We allay pain, and irritation, and thus disease is removed. The practice has been adopted very generally, and with all the beneficial effects which might be expected. Examples—

Administered in *Pleurisy*, after general bleeding, or other depletion, with great advantage. Administered as follows :

R. Opium, gr. 1.

Calomel, grs. vi. or viii.

Made into a pill, and repeated every four or six hours. This combination will be found highly composing and refreshing—promoting secretions, and removing all traces of disease. In the treatment of Inflammatory diseases, blood-letting and purgatives are not alone sufficient. These remedies, though useful, often induce symptoms also of a very distressing character, and they have received the general title of irritation, and this irritation may sink the patient unless allayed.

It is for the relief of this symptom, that opium is so commonly employed, and with particular good effects if combined.

Should any topical disease continue, the same combination will be found beneficial—Thus employed, the prejudices which have so long existed against the use of opium in inflammatory diseases have given way, and we find it employed in acute disease, and even in topical inflammation, after, or in company with venesection.

Family *Laurineæ*—*Laurus Camphora*—Camphor Tree.

A forest tree, growing to a considerable size in the Islands of Borneo and Sumatra. The wood has a strong camphorated smell, and is much sought after as a material for chests, &c. The oldest trees are the best, and the camphor is found in perpendicular veins, near the centre of the tree, or concreted in the knots of the tree.

Manner of separating the camphor from the tree.

Purification of Camphor—The process consists in uniting thirty or fifty pts. of quicklime with the impure camphor, and submitting the mixture to a new sublimation.

Obtained also from many aromatic plants, as the roots of the Cinnamon tree, of the Cassia, of the Sassafras—Various aromatic oils, as Rosemary, Mint, Sage.

Camphor obtained from these sources not identical with that obtained from the *L. Camphora*, and from the *Dryobalynops Camphora*.

Qualities of Camphor.

White brittle substance.

Unctuous to the touch.

Tenacious between the teeth.
 Not easily pulverized.
 Odor, fragrant and penetrating.
 Taste, pungent and bitter.

It is volatile, and dissipated at ordinary temperatures. It is dissolved by alcohol, æther, oils.

Properties—There is still some difference of opinion respecting the action of camphor on the system. By some it is regarded as a stimulant, while others maintain that it possesses considerable sedative powers. When taken into the mouth, it has an acrid, bitter taste, and when swallowed, it excites an uneasy sensation in the stomach, which may be imputed to the operation of its acrimony upon its upper orifice.

In its operation upon the system, this article is somewhat peculiar. In its sensible properties it is, doubtless, stimulating, but it appears to exert but little action upon the pulse. It soon produces a strong tendency to perspiration, without the pulse being sensibly affected in quickness—Employed in Febrile affections, with a dry, contracted skin, combined with other articles, even when the excitement would seem to forbid it, as in the following formula :

R. Nitrate of Potash, 3i.
 Camphor, ʒi. to ʒss.
 Tart. Antimony, gr. i.

Mix and divide into vii. or viii. powders, one of which may be given every second or third hour. Instead of Nitrate of Potash, Calomel may be added, and sometimes Opium.

Opium is conjoined with Camphor, with considerable effect—a new substance being formed, different from either. The combination prevents the disagreeable effects of opium, and determines gently to the skin. The union of these two articles in the following proportions, forms a powerful diaphoretic :

R. Camphor, grs. viii.
 Opium, gr. i.

Make into a powder, to be repeated according to circumstances.

In all Uterine affections requiring the use of opium, the above combination is very efficacious.

The German or camphor practice, was employed with much success in the treatment of the *Asiatic Cholera*—Employed in all the stages.

In the stage of *Asphyxia*, it is given in doses of xv. to xxx. m., every fifteen minutes in a table-spoonful of water.

Enemata of the same were employed.

The chest and abdomen were covered with flannel, wet with a solution of the same. The practice continued, until free perspiration was induced, and the evacuations lessened. As the symptoms became less violent, the doses were diminished, or the intervals increased.

In the *Spasmodic* stage, the same treatment—also in the *Premonitory*. This practice spoken of in high terms by some of the physicians of New-York.

Effects of Camphor in a large dose—Recital of a case in which a very large dose was taken. The case interesting, as illustrating the action of camphor on the brain, being one of the sensorial stimuli—also

exhibiting its strong determination to the skin, the perspiration flowing freely under its operation.

As camphor is of a volatile nature, and its effects transient, the dose should be repeated at short intervals.

It ought to be minutely divided before it is given—This is done by rubbing it first in a mortar, with any dry powder, as sugar, or nitrate of potash, or by dropping a few drops of rectified spirit upon the camphor.

Dose of Camphor as a Diaphoretic is from ii. to viii. grs.

Carbonate of Ammonia, or Mild Volatile Alkali.

Preparation—It is obtained in the form of a white crystalline mass, fibrous texture, efflorescent, odor pungent and peculiar.

Properties—Stimulating, and employed in the low stages of disease—Antacid, also Diaphoretic, though in a less degree than the preparations made from it. The Acetate of Ammonia being most remarkable for its diaphoretic operation.

It is prepared by pouring upon the Carbonate of Ammonia, as much acetous acid as may be sufficient to saturate the Ammonia, the carbonic acid gas escaping in the process. By this operation, we obtain Acetate of Ammonia, dissolved in the water of the acetous acid—To it, other diaphoretics are added, as Sweet Spirits of Nitre, or other articles.

It is administered in doses of $\frac{3}{4}$ ss. every hour or two.

It may be given during the paroxysm of Fever with less apprehension than most other diaphoretics of this class, and administered when much heat and dryness of the skin exist, with this great advantage, that it will be readily retained upon the stomach, when most others would be rejected.

This medicine may be made very readily, and extemporaneously, by adding the acetous acid to the carbonate in a phial, and by corking it, the carbonic acid is prevented from escaping—it unites with the water, and forms a much more pleasant mixture.

INDIGENOUS DIAPHORETICS.

FAMILY *Synanthereæ*—*Eupatorium Perfoliatum*—Thoroughwort, Boneset, Vegetable Antimony, &c.

Found in most parts of the United States.

Description of the plant.

Leaves connate, perfoliate, rough, downy.

Stem rises to the height of three and six feet.

Corolla, small, white.

Properties—Diaphoretic, tonic, emetic.

The leaves and flowers being the most active parts of the plant.

Qualities—Taste bitter, flavor peculiar.

Administration—In the form of infusion, taken warm it acts as a diaphoretic.

Employed in the treatment of *Intermittent* and *Remittent* Fevers, and forms a very useful domestic prescription.

It was Dr. Rush's favorite diaphoretic in the *Yellow Fever* of Philadelphia, in 1798—and such was its efficacy, as to cause it to be entitled the Vegetable Antimony.

Employed in *Typhoid Pneumonia* with advantage, as a sudorific and tonic, after proper evacuations.

In *Catarrhal* affections—In *Influenza*, *Break-bone* Fever, with such success as to be called "Bonset."

It is also possessed of tonic properties, and employed in the treatment of *Intermittent* and *Remittent* Fevers, as a substitute for Cinchona—Its Febrifuge powers overrated, and properly ranks with Chamomile and others of that class.

Useful in the convalescence from acute diseases, in debilitated conditions of the digestive organs, and in indigestion.

Forms of exhibition—As a tonic, given in the form of decoction and cold, in substance and in tincture.

Dose—Substance, xx. to xxx. grs.

Decoction, a tea-cupful.

Infusion, as much as the stomach will bear.

Family *Apocynæ*—*Asclepias Decumbens*—Pleurisy Root, and Butterfly-weed.

Description of the plant.

Root tuberous, but more properly fusiform, perennial.

Leaves scattered, sessile, on short foot stalks, hairy, long, lanceolate.

Flowers, bright yellow color.

Stems numerous, ascending, and procumbent.

The root has been long celebrated for its diaphoretic and expectorant properties, and has been employed in *Fevers*, *Catarrhs*, and pleuritic affections. It produces its effects without stimulating the system, but operates with mildness and efficacy. Dr. Parker, who employed it many years, considers it as possessing a specific quality of acting upon the organs of respiration, promoting suppressed expectoration, and relieving the breathing of pleuritic patients.

Dr. Chapman speaks of it as possessing very decided properties, and producing its effects without increasing the force of the circulation, or the heat of the body.

The popular opinion of its efficacy in pleurisy is not without foundation; relieving the oppression of the chest in recent catarrh, and promoting expectoration in protracted pneumonics. It can only be considered as an auxiliarily, and may be resorted to, when the force of the disease has been reduced by more active means.

Forms of exhibition—

In infusion, a tea-cupful every two or three hours.

Powder, xx. to xxx. grs. several times a day.

Family *Aristolachiæ*—*Aristolochia Serpentaria*—Virginia Snake-Root.

Description of the plant.

Root perennial, fibrous, externally brown, internally white.

Stems round, slender, eight or ten inches high.

Leaves few, entire, ovate.

Flower at the base of the stem, lying on, or sometimes under the surface of the earth, of a purplish color.

Qualities—Odor, aromatic.

Taste bitterish, pungent, not easily concealed.

It yields its active properties to water and alcohol.

From the root, camphor in the form of fine white crystals can be obtained by distillation.

Properties—Stimulating diaphoretic—insomuch that it is not usually resorted to in diseases, until the excitement of the system has been reduced by evacuating measures—Useful in allaying the irregular actions attendant on great febrile debility—Employed in the advanced stages of Fevers, and those attended with Typhoid symptoms—May be given alone, or in combination with wine whey, or other articles. It is also advantageously united with camphor, as follows :

℞. Infusion of <i>Serpentaria</i> ,	℥ vii.
Camphor, grs.	x. to ʒi.
Sweet Spirits of Nitre,	℥ ss.
White Sugar,	℥ ii. m.

Rub the camphor with the sugar until it is reduced to a fine powder—add the Spirits of Nitre, and then the infusion—strain.

Dose, ʒss. every two hours.

Employed also in the form of warm infusion in the secondary stages of Pleurisy, &c.

It is highly recommended by its agreeable taste and aromatic odor, insomuch that it will in general remain well upon the stomach.

The infusion is prepared as follows :

℞. Roots of <i>Serpentaria</i> ,	℥. to ʒii.
Boiling water,	1 pint.

Dose, ʒss. to ʒi., as often as the case requires.

Of the same Family—*Asarum Virginicum*—Heart Snake-Root.

Description of the plant.

Root fibrous and perennial.

Leaf solitary, heart shaped.

Flower nearly sessile—concealed in the ground—of a greenish color, to a purple.

Qualities—Odor aromatic, agreeable in a high degree.

Taste bitterish.

Properties—Stimulating diaphoretic, and similar to those of the preceding article—employed in the same disease, and may be advantageously substituted for it.

Same Family—*Asarum Canadense*—Wild Ginger.

Description of the plant.

Roots fibrous and perennial.

Leaves radical, petiolated, kidney shaped.

Flower solitary.

Properties and applications, similar to the foregoing.

Family *Araliaceæ*—*Aralia Spinosa*—Prickly Ash.

Description of the plant.

Root perennial.

Stem straight, unbranching, naked and prickly below.

Leaves crowded on the summit of the stem, like the palm tree.

Qualities—Taste pungent and acrimonious, and there is experienced soon after swallowing, a heat and warmth in the stomach, with a glow upon the surface.

Properties—Stimulating, and pretty certain diaphoretic—Employed in Rheumatism in the form of saturated tincture of the root, and taken in as large doses as the stomach will bear, without exciting sickness, or vomiting.

Dose of the tincture, ʒi. to ʒss., taken in a little water.

The root is used as an ingredient in diet drinks, and in the form of an infusion made strong, is an active emetic.

Vegetable Alternatives.

This term sprung up amongst the Humoral pathologists, who entertained the belief that the diseases of the human body arose from some disordered state of the fluids, and that all disorders were mere efforts of nature to expel the peccant humors. They considered the blood as the principal source of mischief, and they employed such medicines as might alter its state—hence they speak of purifying and sweetening the blood.

The term is still employed, and the diseases in which they are used are well understood.

The first of this class of remedies, is the

Family *Rutaceæ*—*Guaiacum Officinale*—Lignum Guaiacum, &c.

Description of the tree.

It is a native of the West Indies, and of South America, and grows to a considerable size. The wood is extremely ponderous and solid, very resinous, of a blackish yellow in the middle, taste heating and aromatic.

The wood is possessed of properties similar to the gum-resin, though less active.

It has been used as an ingredient in decoctions, which were celebrated in several diseases of the system, particularly in Syphilitic affections. It is not as efficacious as the Gum Resin, or Extract.

This *Extract* is obtained by wounding the bark of the above tree, from which it exudes in a considerable degree, and when a sufficient quantity has been discharged, and hardened by exposure to the sun, it is gathered and packed in small kegs for exportation.

Color of the extract, greenish brown.

It is easily pulverized—the powder which is first grey, becomes green on exposure to air and light. Of the precise nature of this substance,

chemists are not agreed. It possesses properties allied to gums and resins—yet distinct from either.

Medical Properties of the Extract or Gum.—They are stimulant, diaphoretic, sometimes diuretic or purgative.

The effects are, to excite the action of the heart and arterics, and to promote the serous exhalation of the skin.

The Guaiacum was first employed by the natives of St. Domingo, as an antidote for the Lues Venerea.

The Spaniards soon acquired a knowledge of its virtues, and introduced it into Spain as early as the year 1517. It has declined in importance, but is still useful in the *sequela* of the disease.

This article has been much celebrated in *Rheumatism*, particularly in the chronic forms of the disease.

Given in these cases after depleting remedies, when there is little fever, the pains frequently shifting their situation, with swellings of the joints, any of the preparations will be found useful.

It should be given in larger doses than it is usual to employ, and it is probably from these small doses, that the article has lost reputation.

The utility of medicinal combinations is manifested, in the application of this article to diseases.

The following formula will be found useful :

℞. Powdered Gum Guaiac, ʒi.

Tartarised Antimony, gr. $\frac{1}{8}$.

Gum Opium, gr. $\frac{1}{2}$.

Mix and make into a powder.

To be repeated as often as the case requires.

To these articles, Calomel may be added. By this combination we obtain a new and active compound, not afforded by the simple substance.

The Tincture, combined with a small quantity of Laudanum, afforded much relief to the pains following *Dengue Fever*.

Has been recommended in *Gout*—can only be resorted to during the intervals of the paroxysms.

Guaiac has been much employed as an Emmenagogue—shall speak of its application under that head.

In *Cutaneous diseases* has been recommended, and from its known tendency to pass off by the pores of the skin, may be given with considerable success.

In the chronic stages, when the constitution is enfeebled and deteriorated, the general excitement produced by this article, and particularly of the cutaneous vessels, has a considerable tendency to remove the disease, and restore the enfeebled system.

Combined with other articles, its efficacy much improved—for formula—vide Sarsaparilla.

Mr. Pearson recommends the combination with Sulphur, Antimony, &c., in Herpes, Scabies, Porrigo, &c.

Preparations of Guaiac.—Decoction of the wood—In its preparation, the wood should be in the state of shavings, or raspings. It is prepared according to the following formula :

R. Shavings of Guaiac Wood, ℥ ii.

Water, ℔ ii.—boil gently down
to ℔ i.

Towards the end, add liquorice root bruised, and sassafras raspings—each ℥ i.—simmer to ℔ i., and strain—This quantity to be taken daily.

It is also given in the form of tincture and powder.

Dose—Tincture ℥ i. to ℥ ss., in milk or mucilage.

Ammoniated Tincture—the same.

Of the Powder, grs. x. to xxx.

Adulterations—Sometimes with common Resin and the Machineal Gum.

Family *Thymeleæ*—*Daphne Mezereum*—Mezercon.

A shrub which grows in the Northern parts of Europe, and the high and woody parts of France and Spain. The bark of the root is chiefly employed.

To the taste it is acrid, with an aromatic odor. Applied to the skin, it readily excites a blister, and a considerable discharge of serum.

Properties—Stimulating diaphoretic, diuretic and purgative.

It agrees with Guaiac in its general operation and effects, and is employed in the same diseases, viz:—Syphilis and cutaneous affections.

Seldom used alone, but in combination, and the formation of compound decoctions.

Dose of the powder, grs. vi. to x.

Family *Smilacæ*—*Smilax Sarsaparilla*.

Grows in the West Indies, and in South America.

It is brought to us in long slender roots.

Color—brown externally, white within, covered with a thin coat, and having a wrinkled appearance.

Sensible qualities—odor little or none.

Taste mucilaginous and slightly bitter.

Properties—Diaphoretic, alterative, and sub-tonic.

Medical History—It was brought into Europe as late as the year 1530, with the character of being a specific for the Lues Venerea, in which disease it had been employed by the Indians with considerable success. It, however, lost credit, upon the discovery of the superior efficacy of mercury, and its virtues were overlooked—Again brought into notice by Dr. Wm. Hunter, and Sir George Baker.

Much difference of opinion exists among practitioners respecting the efficacy of this article. Some consider it a medicine of no activity, and others of much efficacy. The fact that 100,000 pounds are annually sold in Great Britain, and as many more in this country, would prove that its advocates are numerous.

In proceeding to speak of this article, I would observe that the remarks made, will not have reference to the Sarsaparilla alone, but they must be understood as applying to it in its various states of combination. By itself, it is highly useful, but the good effects derived from this and other similar articles, as the guaiacum, mezereon, sassafras, &c., are greatly increased by combination with each other. It is therefore of

the combinations of this article, contributing as they do, to their increased activity, as well as to the greater convenience of administration, that the practical remarks I shall make will apply.

Sarsaparilla and its preparations, are admirably adapted to the secondary stages of Syphilis. The secondary forms of this disease, exhibit themselves in the most painful, loathsome, and mortifying affections of the human body.

Originating as these diseases do, not in single acts of folly, or the weakness to which human nature is subjected, but in a continuance of excesses, dissipation and disease, those who are subject to them, exhibit most frequently in constitution and appearance, a body impaired in its energies, and crippled in its faculties.

Mercury alone, in a constitution like the one I have described, cannot be endured. Its stimulating, or rather irritating operation, under these circumstances, aggravates all the symptoms—harasses the patient, and superinduces the most distressing consequences. Sarsaparilla and the vegetable alteratives, combined with very minute quantities of the Perchloride of Mercury, in the manner I shall point out, forms a preparation freed from the objections just made, and a medicine well adapted to the disordered states of the constitution now under consideration.

It will be found excellent in restoring the appetite, strength and flesh of the patient.

It will complete the cure of ulcerations of the palate, throat and mucous membrane of the nose, skin, and other parts.

It will relieve nocturnal pains of the limbs, painful enlargements of the joints, of the bones, membranous nodes, cutaneous ulcerations, &c.

It will efface the blotches, foul spots, stains, &c., which in a constitution of this character so frequently occur from slight irritations, or which remain after the ulcerations have healed.

It will remove that morbid condition of the solids and fluids, which disposes every injury, however slight, to degenerate into a festering, painful, scabby ulcer.

It will, in short, so improve the digestive and assimilating operations of the system, that a more healthy blood, and more renewed fibre, will be substituted for the defective conditions of the one and the other, and thus fully support the character bestowed on these medicines, of being essentially alterative. To accomplish these objects, this class of medicines must frequently be long and perseveringly employed. It cannot be supposed that these great, and important designs, can be effected with a few or lengthened repetitions of these substances. To their continued use, occasionally other alteratives should be added—as diet, change of climate, a long sea voyage, travelling.

Sarsaparilla and its combinations, will be found useful, not only in what is called syphilitic rheumatism, but the chronic forms of ordinary rheumatism.

It will be found useful in various affections of the skin, pustular, papillary, herpetic. Under the last, I would consider not only the affections properly so called, but that very troublesome disease *Tinea Capitis*, which, when long existing, refuses to yield to local remedies, and requires the aid of such as are constitutional.

The combinations of which I am speaking, will be found useful in the chronic ulcerations, of such frequent occurrence in the laboring and poorer classes of society. The tonic and alterative impressions excited, contribute to the rapid and successful operations of granulation and cicatrization.

From the remarks I have made upon these articles, you will be convinced that I repose no small confidence in their virtues—and with the opportunities I have had of prescribing them, in constitutions impaired and debilitated from diseases and excesses of various kinds, in habits vitiated from a scrofulous or venereal taint, or from the injudicious use of Mercury; the relief which, in many instances, has been afforded, fully entitles them to these commendations. I might say more, but I shall probably be charged with extravagance. I trust I have said sufficient to direct your attention to their virtues and efficacy.

Preparations of this article—Sarsaparilla yields its virtues very readily to boiling water, but that the whole of its active and extractive matter be obtained, it is necessary that the boiling be continued a considerable time and in a close vessel. The preparations which are, or have been in vogue, are the Simple Decoction, Compound Decoction, Syrups and Extracts.

Simple decoction prepared by boiling ζ ii. of the roots in four pints of water four hours, in a vessel lightly covered and placed near the fire; then taking out the roots, bruising them, returning them again into the liquor; macerate in a similar manner for two hours more, and boil to two pints and a half—strain.

Dose—one pint daily.

The compound decoctions are prepared by combining with the Sarsaparilla other articles, as the shavings of the wood of Guaiac, bark of Sassafras, Liquorice root, bark of Mezereon root—water. This is the Lisbon diet drink, and for the proportions and manner of preparing, I refer you to the Dispensatories.

A preparation superior to the Lisbon diet drink, is the following:

R. Rad : Sarsaparilla.

China Briar Root.

Sulphuret of Antimony, each ζ viii.

Gum Guaiac, ζ jiss.

Water, xxiv. lbs.

These ingredients are to be simmered in a close vessel for twelve hours, the steam being prevented from escaping. After simmering the time prescribed, to be strained, bottled, and kept in a cool place. The Antimony is to be coarsely powdered, enclosed in a piece of linen rag, and suspended from the cover of the vessel.

Dose, as much as the stomach will bear, to be continued for weeks or months.

Calomel may also be suspended in a bag in a similar manner, and beneficial effects are produced by the same—a very small quantity being taken up by the fluid— ζ ii. to ζ ss. may thus be enclosed in a rag, or small bag, and suspended from the cover of the vessel.

These preparations, though valuable, will not be persisted in by the patient for any length of time. From the delicacy of the stomach, or

the captiousness of the invalid, large and repeated draughts of these medicines will not be taken.

That the remedy may be persisted in, it becomes necessary to present it in a more agreeable form. This is done by increasing the quantities of the ingredients, continuing the decoction longer, forming a fluid extract, and combining sugar and treacle so as to form a syrup.

The first preparation introduced into general notice under this head, was that prepared by Swaim, and called Swaim's Panacea. There can be no doubt that it is a preparation of Sarsaparilla, with other of the vegetable alteratives, reduced to a concentrated state by boiling. When thus reduced, treacle or sugar is added, and a syrup formed. In this preparation, some advance has been made, and to the vegetable, the mineral alteratives have been added. The mercurial preparation used, is the Perchloride of Mercury, or Corrosive Sublimate. This article may have been selected from its activity, the smallness of the quantity required, the difficulty of detection, and its seldom salivating.

The union of these articles has placed us in possession of a preparation, more active, more agreeable to the taste, and more convenient for administration.

I shall not recommend to you the use of this medicine for several reasons—because with a little industry you can be possessed of a preparation free from objections, and with the operation of which, in the diseases I have mentioned, you will be well pleased. It is as follows :

R. Sarsaparilla,	lbss.
Styllingia Sylv.,	ʒiv.
Shavings of Guaiac,	lbss.
Sassafras, Root,	ʒiv.
Water,	1 gallon.

Boil for a sufficient length of time, to extract the virtues of the articles—water must, therefore, be added as it evaporates, and it may, finally, be reduced to two quarts. To this, sugar, or molasses is added, and the whole reduced to the consistence of a syrup. To each pint of this syrup, add of the Perchloride of Mercury, previously dissolved in spirits, grs. ij.

The dose for an adult will be ʒss. to ʒi., three or four times a day. For children less.

Further experience in the preparation of the Syrup, induces me to recommend that the Sassafras root, and the shavings of Guaiac, be added to the decoction, towards the close of the boiling; and the Stylingia, or Queen's Delight, added in the form of a saturated tincture to the Syrup, in the proportion of a pint to the gallon.

The Syrup may be given with, or without the Perchloride, according to circumstances.

Other preparations of Sarsaparilla are simple fluid extracts, and compound fluid extract. By the agency of steam the active matter of this, and other articles, has been concentrated, in a very great degree, and very neat and useful preparations furnished.

Sarsaparilla Syrup.

An alkaline principle has been obtained from this root, to which the term Parillina, or Sarsaparilline, has been given.

The U. S. Pharmacopœia directs the syrup to be prepared with proof spirit, or diluted alcohol, which extracts all the active principles of the roots, and the tincture being evaporated, to a proper degree, is made into a syrup. By this means, the long continued boiling is avoided.

In selecting the roots, it will be right to choose such as are plump, not carious, nor too dusty in breaking, but rough, and split easily longitudinally.

SUBSTITUTES FOR SARSAPARILLA—INDIGENOUS ALTERATIVES.

FAMILY *Smilacæ*—*Smilax Herbacea*.

Description of the plant.

Root perennial.

Stem herbaceous, two to four feet high.

Leaves oval or ovate, five to seven nerved.

Flowers on the lower part of the stem.

Berry, spherical, black.

Family *Smilacæ*—*Smilax Pseudo-China*—China Briar Root.

Description of the plant.

Root, tuberous and creeping.

Stem, climbing.

Leaves, cordate.

Berries, black.

Properties—The root cut into small pieces, is much employed in decoctions and diet drinks. It is possessed of some acrid properties, and on this account, it often acts as an emetic, when the decoction is too strong.

Family *Ulmaceæ*—*Ulmus Fulva*—Slippery Elm.

The inner bark of the tree and branches employed.

The taste is mucilaginous and not unpleasant.

Its effects are, to increase the insensible perspiration, to improve the appetite, and invigorate the general system.

It is administered in the form of simple or compound decoction, and has been employed advantageously, in the public institutions of London.

For its mucilaginous properties, it is employed in the form of tea, or drink, in the affections of the bowels and bladder.

The bark, when dried, is also used for dilating sinus's, and contractions of the urethra.

When reduced to powder, it is employed in the preparation of poul-

tices to inflammatory tumors, or as a wash to irritable ulcers, and applied by means of a prepared lint, as a local application, frequently renewed.

Compound decoction prepared as follows :

R. To a decoction of Elm Bark, add
 Sassafras Root.
 Shavings of Guaiac Wood, each $\mathfrak{z}\text{i}$.
 Mezerion Root, $\mathfrak{z}\text{iii}$.
 Liquorice Root, $\mathfrak{z}\text{i}$.

These are to be boiled together an hour, and strain.

The decoction properly prepared is of a clear brown color.

Family *Euphorbiaceæ*—*Stylingia Sylvatica*, or *Queen's Delight*.

Description of the plant.

Root large, woody, perennial.

Stem herbaceous, two to three feet high, somewhat angled by the base of the leaves, with the whole plant glabrous, lactescent.

Leaves alternate, irregularly serrulate, somewhat coriaceous, shining on the upper surface, paler underneath.

Flowers in a terminal spike, the upper crowded as in an ament, sterile, with interposing cupulate glands.

Fertile florets, few at base.

Grows in dry sandy soils, and flowers in May and June.

The part employed is the root, which acquires a considerable size, and runs to a great depth in the earth. Its structure is not very fibrous, and it is easily broken in gathering. It grew in considerable quantities in the neighborhood of this city, but has been nearly exterminated by the frequent searches made for it. It is found in considerable abundance in this State, particularly in Edgefield, Barnwell, Newberry, and Abbeville Districts. It is also found in Georgia and other parts of the Union.

Few vegetable productions, in their recent state, exhibit more power, concentrated in a small compass, or exercise an influence more energetic, upon the particular organs to which it is applied, and through them upon the system generally. So powerfully is this action exerted upon the capillary and secreting vessels, in changing their morbid states or conditions, and thereby disposing to a new and more healthy action, that in this respect it is nearly allied to mercury, exerting an influence little inferior, in many cases, and in others, greatly to be preferred.

Sensible properties—

If we open a drawer in which the recent root has been kept a short time, we are sensible of an odor, extremely strong and acrimonious, and rather of a disagreeable character.

The taste of this root is also pungent, and leaves on the root of the tongue and fauces, an impression biting and irritating, exciting a flow of saliva.

The juice of the root, applied to the surface, and rubbed upon it, occasions smarting and irritation. If we remain in a close room where the root is being boiled, and the vapor passes into the room, a sense of sickness at the stomach is excited, with a disposition to discharge saliva, with headache, and other unpleasant symptoms. From this circum-

stance, we infer that the active matter is of a volatile nature, and it is proved by the roots losing much of their weight and activity by being long kept. It is estimated that the probable loss is 80–100 per cent.

From the above, we recognize that the plant will present a close alliance to the most active of the Euphorbiacæ. In its irritating operation upon the surface, not much inferior to the oil of the Croton Tiglium; and in its emetic and cathartic operation, superior to the Euphorbia Ipecacantha, and E. Corollata. From its alliance with these plants, its activity might be inferred, and this has been fully verified by experiment.

Effects of this article upon the system—

Its Emetic Operation.—This it possesses in a considerable degree, insomuch that it is usually resorted to for this purpose by the residents of the country. Given in the form of an infusion of the root, and taken liberally, it is quite energetic in its operation. A single transverse slice of the *recent* root, about the size of a sixpence, chewed and swallowed, is followed by considerable heat in the mouth and fauces, extending down the œsophagus, with burning in the stomach, nausea, and increased flow of saliva. The uneasiness continues, and becomes more distressing after a short time, and in persons who are susceptible to the operation of emetics, vomiting follows. It is, in short, of all vegetable substances, in this particular, with which we are acquainted, the most active in a small compass. The root must be in a recent state, as the virtues of the plant are sooner impaired by drying, than any other. To such an extent is this the case, that we have been disposed to consider its virtues of a volatile nature, as it undergoes considerable deterioration by keeping.

From its strongly stimulant operation upon the stomach, when taken in large doses, we might infer its beneficial influence in well regulated doses upon other portions of the system, and particularly in those diseases where a *stimulant and alterative operation* is required. Hence, in diseases of the *capillary* and *lymphatic* systems, it has been resorted to, and from its action upon these vessels, with much advantage. The intimate connection of these diseases with the condition of the digestive organs, need not be enlarged upon in this age of pathological research. There is, in the constitutions in which these diseases occur, obviously a want of tone and energy in the solids, which incapacitates the person for proper exercise—a weakness of the muscular system, which leads to speedy exhaustion, and this impaired condition of the solids, is the result of bad digestion, by which the fluids of the body, and the blood more particularly, are deprived of those nutritive properties, which are essential to a healthy condition of the organs to which they give support. The chyle being imperfectly elaborated, the blood is thin in consistence, its globules deficient in quantity, and has few of those active ingredients, the saline properties particularly, which are necessary to the due order and integrity of every part. The out-posts, therefore, suffer most, or those parts which feel the vivifying influence of the heart's action in a less degree. To restore these parts, we must direct our attention more particularly to the sources of supply; the condition of the digestive organs must be attended to, and as we invigorate them, and

diffuse their action over all parts of the system, and particularly to the most remote, will our efforts meet with corresponding success. In scrofula and other diseases of the lymphatic system, we must look to the condition of the digestive organs—the disease being properly termed strumous dyspepsia. The remedies, therefore, which in giving tone to these organs, seem to have an action upon remote parts, either in stimulating the languid capillaries to greater activity, or in exerting an alterative operation, are the remedies upon which our confidence is to be chiefly placed. Simple stimulants are insufficient to insure the attainment of these objects; other properties are to be added, and these we term alterative, without explaining their action. But as every article seems to exert its own peculiar impression upon the system, so does this differ from all others, and to this operation, *sui generis*, are we to attribute its beneficial effects in diseases of the lymphatic system.

Of the use of this article in Scrofula.—From what has been said of its local and general effects upon the system, its application to this disease might be inferred. Reasoning, however, upon the virtues of the article, did not direct the employment. Accidental causes, most probably, conspired; and to whose sagacity we owe the first patient, painful, and successful experiments, is undetermined. All of these were required in the use of a substance, which produces decided effects even in small doses. The painful trials were endured, and the result was much relief to the sufferers, and an enduring reputation to itself. Of its efficacy, there is not wanting the testimony and support of many individuals of veracity. It has been employed where the glands of the neck were enlarged, where suppuration has taken place, and in ulcerations of the same, and found beneficial. The testimony of professional and unprofessional persons could be adduced on this subject, and would confirm the statement I have made; but the daily progress of a case of this nature would afford little interest. In this form of disease, when from feeble health, the system becomes irritable and captious, and the digestive organs not less so—where perseverance in an article, which is to produce an alterative operation upon the fluids, and even solids of the body is required, it becomes a desideratum to know how the article should best be administered; for from failure in these particulars, it is precipitately abandoned.

It has been administered in substance, in pills, or a thin transverse slice of the root, chewed and swallowed. It has also been administered in the form of infusion, sweetened with sugar or syrup, and in the form of tincture. The former modes of administration are objectionable, in consequence of the article losing its virtue by keeping; and the latter is difficult to enforce with young persons. The plan which has been found most efficacious to preserve the strength of the root, and most agreeable for administration is, to extract the juice of the recent root, by pounding the same, expressing, and straining—mixing in determinate proportions with the best treacle, bottling and preserving for use. The dose to be administered will be regulated by the effects.

It is in *chronic diseases* and *chronic inflammations*, that the efficacy of the Styllingia is best exhibited, and more particularly in the long train of consequences which follow syphilis. Its reputation in the se-

condary and tertiary forms, is well sustained, and of the many boasted nostrums for the cure of these cases, few will be found more deserving of a trial, either singly, or in a combined preparation.

In corroboration of the effects of this article, I will detail, by the consent of a friend, Dr. Thomas Y. Simons, a case of Syphilis in its advanced stages, in which it was usefully employed.

The patient was a little girl, who had an enlargement of the tibia, to such a degree, as to deprive her of all power of motion. Enlargements also existed in various other parts of the body, resembling nodes, viz: upon the olecranon process, upon the head, and one in particular upon the forehead, of the size of an egg. The bones of the nose were much affected, insomuch as to cause a considerable depression. The condition of this patient was in a high degree distressing: Seated in a chair, with the limbs contracted and swollen, she bid fair to pass a miserable and protracted existence, a burthen to herself, and a source of anguish, distress, and trouble, to her parents. Various remedies, alterative and mercurial, had been tried by a physician long in attendance, with but little benefit. Dr. Simons being at length consulted, determined upon trial of the Styllingia. The patient was at first pretty freely evacuated, and the evacuations continued occasionally during the treatment. The Styllingia, in infusion, was employed as follows:

Take of the recent Styllingia root, *z*iv.
Water, *l*bi.

Simmer until one-third is dissipated.

This quantity was drunk during the twenty-four hours, in such doses as not to nauseate the stomach in any degree. The medicine was continued for months, and at the expiration of several, she was so much improved, as to be able to move about with the assistance of a stick, have the free use of her limbs, and the swellings, particularly that on the forehead, considerably reduced. The patient has every appearance, at the present time, of being speedily restored to a considerable degree of health—though it is doubtful, considering the ravages her system has sustained, whether she will ever enjoy perfect health.

The Styllingia we rarely employ alone, being convinced, that a combination of medicines to a reasonable extent, particularly among that class termed alteratives, is much more beneficial. It is, therefore, commonly combined with the Sarsaparilla, and other articles, either to improve its efficacy, or to render the preparation more agreeable. Combinations of medicines of a similar or dissimilar character, have always been considered productive of greater advantages, than can be obtained by their simple administration, and hence we usually have recourse to their union, when it can be done profitably. The observation of Dr. Fordyce upon this subject, has always appeared particularly forcible and happy—"There is," he says, "something in the relative effects of medicines, similar to the harmony of colors and sounds, and that the impulse requisite to the living powers, which cannot be produced by a single impression, may be effected by a concurrence or succession of impressions, in some degree allied to each other." Those in practice, who have paid attention to the subject, must have observed that greater benefits are afforded by a union of forces, than by em-

playing any one singly. It not only improves the efficacy of the article we are administering, but, in many instances, gives rise to compounds of entirely new powers.

Acting under these impressions, as well as to obviate the unpleasant effects produced by this article in some cases upon the stomach, in exciting nausea, either from the dose being larger than could well be borne, or from the irritable condition of the patient's stomach, we have commonly administered it combined with other articles, after the formula, already furnished, under the head of Sarsaparilla—which see.

The Styllingia, thus prepared and administered, will not be found unpleasant to the taste, to be well adapted to many of the forms of secondary Syphilis, and to most of the diseases detailed under the article Sarsaparilla.

With these articles is completed the consideration of the stimulating Diaphoretics.

Under the *Second Division*, we proceed to those Diaphoretics which produce *relaxation*, by diminishing action.

The first in importance, is the

Preparations of Antimony.—These have been very numerous, but are now reduced to a few.

Of the *Tartarised Antimony*—already referred to—Its effects are, to promote the excretions, and to quicken and stimulate the action of the absorbent vessels—It is also diaphoretic and expectorant.

These effects influenced by the dose, increasing it to render it a vigorous emetic and cathartic, and diminishing it, when the gentle, and more gradual operation of a diaphoretic and expectorant is to be secured.

The diaphoretic operation is connected with the production of nausea, by which a reduction of arterial action ensues, and relaxation of the skin takes place.

In addition, these preparations would appear to exert a direct and specific operation upon the skin.

To these properties, must be added its Sedative and Febrifuge, the effects of which are exhibited in a great degree upon the circulation, so as to render it a valuable article, not only in Febrile diseases properly so called, but also in Inflammatory.

As a Febrifuge in the Fevers of our country, its value is well known and appreciated—Extolled by Dr. Rush, its efficacy much improved by combination, particularly with the Nitrate of Potash, as follows :

R. Nitrate of Potash, ʒi.
Tartarised Antimony, gr. i.

Mix and divide into six or eight powders—a powder to be taken every two or three hours.

The usual dose as a diaphoretic is the 1-6 of a grain.

Pulvis Antimonialis—*Antimonial Powder*—Preparation—

Properties the same as the preceding, and employed in similar cases.

We should be on our guard in employing it, as it is frequently an inert article.

Its inertness, owing to a Peroxide of Antimony being formed, instead of a Protoxyde—also to its containing a large portion of the Phosphate of Lime.

Has been given in doses of from grs. v. to $\mathfrak{z}\text{i.}$, without any sensible effect. This article may be passed over cursorily, as there are no effects derived from it, which cannot be obtained from the preceding. Tartarised Antimony may be substituted for it after the following formula :

R. Tartarised Antimony, grs. viii.

Powdered Gum Arabic.

Powdered Liquorice Root, each $\mathfrak{z}\text{i.}$ —Mix.

Sixteen grains contain one grain of the Tartarised Antimony, so that ii. to iv. grs. will be the average dose for the fulfilment of those indications, which are generally expected from iv. to vi. grs. of the common antimonial powder.

The dose of antimonial powder is from iii. to v. grs.

The next preparations are, the

Kermes Mineral and Golden Sulphuret of Antimony.

The preparation of these articles already mentioned—Much employed by some physicians, particularly the French, for their diaphoretic operation, and employed in all those cases where this class is recommended—also in obstinate Catarrhal affections, after depletion, rubbed up with mucilage or simple syrup.

Ipecacuanha proves diaphoretic, by its action on the stomach producing nausea, with reduction of arterial action and relaxation of the surface—Rarely given alone, but combined as in Dover's powder—The value of this combination already mentioned.

Useful in the *Intestinal derangements* of children during dentition—given in small doses, and combined with prepared chalk. Formula—

R. Dover's Powder, gr. iv.

Prepared Chalk, grs. xii.

Mix and divide into six powders—a powder to be taken every three or six hours.

Ipecac. is given in small doses in affections of the mucous membrane of the Lungs, and in similar affections of the same membrane of the bowels, dysentery and diarrhœa—By the practitioners of India, it is employed in the malignant diseases of that country with great advantage, but in large doses.

Dose as a diaphoretic, gr. ss. to ii. grs., every two hours.

Nitrate of Potash—Found native in the East Indies, and in union with earthy substances—also prepared artificially by making nitre beds. Properties—

Taste sharp, bitterish, pungent, with a sense of coolness—Diaphoretic in its operation, but principally useful for its refrigerant, and somewhat sedative operation, in allaying the action of the arterial system, and diminishing heat and thirst.

It is combined with the Tartarised Antimony and Calomel, forming the nitrous powders, as follows :

R. Nitrate of Potash, ʒ iss.
 Tart. Antimony, grs. i.
 Calomel, grs. viii.

Mix and divide into viii. powders—a powder to be taken every two or three hours—The advantages of this combination.

This salt sometimes taken in large doses for Glauber Salt—the accident not unfrequently happens from a resemblance in the crystals.

The effects of a large dose described, and the treatment to be pursued.

Crystals of other articles, which may be mistaken for each other—For example, Sulphate of Magnesia for Sulphate of Zinc, and these for Oxalic Acid.

This last a corrosive poison, and when taken, the antidotes are Lime and Magnesia, with which is formed an insoluble Oxalate of Lime or Magnesia.

Carbonate of Soda.

Properties—

Saline and slightly alkaline taste—employed in the form of neutral mixture, by being saturated with Citric Acid or Vinegar. Preparation—

Take of Lime Juice or Vinegar, ʒii.

Carbonate of Soda, as much as may be sufficient to saturate it, previously dissolving it in a little water.

Sugar, ʒii.

Water, ʒii.

The dose ʒss. every hour or two—To it may be added the Sweet Spirits of Nitre, or Antimonial Wine.

This preparation is adapted to the Febrile affections of children, or grown persons of delicate habits.

Carbonate of Potash—

May be taken in the form of effervescing draught. Preparation—

R. Carbonate of Potash, ʒss. to ʒii., dissolved in half a wine-glass of water.

Citric Acid, as much as is sufficient.

Upon being united, considerable effervescence takes place, and it is drunk during this state.

It is recommended in irritable states of the stomach—in checking vomiting—in exciting perspiration. To be repeated according to circumstances.

Soda Powders—

Substitute for Soda Water. Preparation—

Bi-Carbonate of Soda, grs. xxx., to be fold d into one paper.

Tartaric Acid, grs. xxx., into one paper—Each dissolved in separate portions of water, to one of which sugar, or syrup, has been added.

Upon their union, effervescence takes place, and during this state it is drunk.

Citrated Kali—

A useful preparation— ʒi. dissolved in iv. oz. of water, produces a mixture, or saline draught, fully equal to that prepared from the fresh Lime Juice, or Vinegar, and Carbonate of Potash. It has the advantage also in being more uniform.

UPON THE EXTERNAL MEANS OF EXCITING DIAPHORESIS.

THEY will be influenced by the condition of the surface. These conditions admit of considerable variations, and so are the means with which we operate.

The skin is sometimes in a very excited state, and the general system also. Perspiration is suspended by the constriction which exists—the excitement transcending the point of secretion—The proper remedies under these circumstances.

At other times, the vital powers are in a feeble condition—the skin is dry and cold—the functions are performed with extreme feebleness—it is without softness—it is contracted, hard, and gives to the touch the feel of parchment—Applications of an opposite character are required.

I shall commence my observations with the consideration of the *Cold Bath*.

The practice of bathing seems to have been held in the highest estimation in very ancient times—even when little advance had been made in civilization, for its healthy operation on the system, and preserving the skin in a state favorable to the proper exercise of its functions.

It became a most luxurious indulgence—Splendid edifices erected for this purpose.

The effects of the cold bath—

Immersion in water at the temperature of 65° Fahrenheit, is followed by these changes. There is experienced a sudden sensation of cold, forming that shock to the whole system, which is one of the most important effects of the cold bath. This is succeeded by a sense of warmth, which increases rapidly to a certain extent, constituting what has been termed a glow upon the surface.

It is a reaction, which Dr. Brown considers as arising from an accumulation of excitability. When the body has been placed under these circumstances for a few minutes, there must be a considerable impression made upon the nervous, and sanguiferous, and absorbent systems, and this impression may be made subservient to the relief of many diseases.

One of the most important of its uses is in the hot stage of Fever.

Characteristics of Fever—

Increase of heat greatly above the natural standard.

Dry and unperspirable skin.

Pulse hurried and unsteady.

Wandering of the thoughts—delirium.

This deranged condition of the system is to be relieved, and it must

be done by such means as will restore the secretions of the skin—hence the excitement of the system must be reduced.

This is done in several ways. By cool air, a free circulation of air, sponging with cold water, or vinegar and water, or plunging in cold water, or its affusion over the body—the last, if the directions of Dr. Currie are followed, no apprehensions need be entertained of any ill consequences being produced.

The most advantageous time for the use of the bath—

When the heat is steadily above what is natural.

When there is no sense of chilliness present.

When there is no general perspiration.

The consequences of a proper employment of the bath—

1. The reduction of the animal heat.

2. The reduction of the action of the heart and arterics.

3. The diminution of the cerebral and nervous excitement.

4. The production of profuse and general perspiration.

Following the general reduction of the excitement of the system—there is

1. Abatement of thirst.

2. The frequent and hurried pulse is lowered.

3. The restlessness is relieved.

4. The wandering of the mind is composed.

5. Easy and sound sleep succeeds.

Various instances to be found, in the records of medicine, of persons, who, under the delirium of fever, have thrown themselves into cold water.

These instances occurred at sea. They have been taken up relieved of their Fevers, and restored to their senses.

The explanation is very easy and natural.

The Febrile diseases in which the cold affusion has been employed, are—

Yellow Fever.

Bilious Remittent, or Country Fever.

Intermittents.

Simple Continued Fevers.

Manner of using the cold affusion—

When the excitement is renewed, and the same symptoms threaten a recurrence, though in a less degree, the same practice is to be repeated.

We have in this manner employed the affusion five or six times during a paroxysm, and we may add, that few Febrile diseases will withstand such treatment—they will yield to it.

Precautions in the use of the cold bath—

The cold bath an auxiliary to blood-letting and other depleting remedies, and employed when their use can no longer be persisted in advantageously.

Hence we would not commence our treatment with the cold bath, but when depletion in the ordinary way fails of relief, other aid must be brought to our assistance, and the aid thus furnished is sure and powerful.

The cold bath is not only useful as a Diaphoretic in acute diseases, but it is no less valuable as a Tonic in the chronic.

Wet sheets in the treatment of Fever.

Dr. Wm. Gill's description of the manner of treating Fevers according to the above practice.

Refer to American Journal, January, 1848.

TEPID AND WARM BATH.

TERMS applied to water ranging from 85 to 90, and 96° Fahrenheit.

Baths of this description often found efficacious as a remedy in diseases.

Applicable to all the cases in which the cold affusion has been recommended, and it is preferable where there is any doubt of the capacity of the system for an adequate reaction.

It is valuable for its *revulsive* operation, hence it is well adapted to the advanced stages of Fever—when, in addition to the impaired condition of the vital energies, there is added accumulation of fluids, on particular organs.

The effects and its applications, the same as the cold bath.

Vapor Bath—

An agreeable and salutary practice, as well as a powerful remedy in some obstinate chronic diseases.

Construction of the Bath—

It consists of a chamber into which the steam of boiling water, either simple or medicated, is conveyed through pipes from a common digester, or steam boiler. The patient is seated on a chair, and the vapor ascends through a perforated plate at the bottom, which soon envelopes the body, and is taken into the lungs.

In this apparatus the stimulant power of heat is modified and tempered by the moisture united with it. Its heating effect is further diminished by the copious perspiration which ensues.

The effects of the Vapor—

1. To stimulate the action of the heart and arteries.
2. To excite the action of the superficial arteries.
3. To excite free and profuse perspiration.

The effect of the employment of steam not only depletory, but *revulsive*—equal and due action is restored to the surface—agreeable sensations excited.

Thus it becomes a valuable auxiliary in several obstinate and severe diseases—such as depend upon suppressed perspiration—as

Rheumatism—diseases of the intestinal canal.

Dropsy—cutaneous diseases.

Sulphur Baths—

Baths of this description are not much used for their diaphoretic operation, but chiefly in the diseases of the skin. Having already re-

ferred to the subject under the article Sulphur, described the manner of constructing the bath, or fumigating chamber, and brought to notice the more prominent diseases in which it is efficacious, will conclude by observing that this mode of treatment in cutaneous diseases, has conferred a benefit upon human nature, little short of the discovery of vaccination, as a protection against small pox.

Minor means—

Jenning's Vapor Bath—Bottles filled with hot water—bags with hot ashes, or sand, or salt.

DIVISION 6.

DIURETICS.

Medicines which promote the secretion of Urine.

THIS is effected by such substances as are known to exert an action upon the kidneys. Their office in health seems to be, to relieve the vascular system from any distension, from too large a quantity of fluids being carried into it, as well as to convey through the urinary passages such fluids, as having served the purposes of the animal economy, have become useless. In disease, these happy arrangements are broken up, and in some diseases, particularly in those in which swellings occur in various parts of the body, the superfluous fluids, instead of being carried off by the natural passages, become effused in the several cavities of the body. It becomes therefore desirable, that we should be informed how these organs may be stimulated to a new and more active secretion, in order that these depositions may be removed, and the gland restored to a more healthy state.

How shall they be removed, or how shall the kidneys be excited to discharge them?

One of the methods of increasing the action of the kidneys is, to increase the quantity of fluid taken into the system, or drinks. This increase of drinks has always been considered the chief of diuretics. Can it, however, be safely trusted? or rather, might it not as well pass into the cavities of the body, as by the kidneys.

This apprehension has prevailed so much with physicians, as to lead them to enjoin as much as possible an abstinence from drink, and it has been asserted, that by such abstinence the disease has been cured.

The truth of this statement will not bear a very rigorous inquiry.

Such cases are of rare occurrence, at least, and, generally, it is not found to be productive of benefit. In short, at the present time it is not attempted, being of very doubtful efficacy, and being a practice very difficult to enforce. Fortunately for the sufferings of the patient, it has been decided that the use of drink is safe in dropsy, and that the quan-

tity of urine voided, when it is permitted, is usually equal to the quantity of drink taken in. The safest rule on this subject, is, that when the quantity of urine voided is equal to the quantity of drink for the same time taken in, it is obviously safe to allow as much drink as the patient may desire, and by such indulgence, the disease is not found to be aggravated.

The *second* mode of increasing the action of the kidneys is, by introducing into the system such articles as are stimulating to them.

The saline diuretics most probably act in this manner. They are taken into the circulation, are brought to the kidneys in the course of the circulation, excite their vessels to increased action, and a large quantity of fluid is secreted.

The preparations of Potash, or Soda, all operate through the channel of the blood-vessels—they all enter into the circulation, and can be detected by chemical tests.

Nitrate of Potash, and the fixed alkalies, are of this nature, and the various preparations of them, as the Acetate, Bi-Tartrate, and Carbonates of Potash.

Many vegetable substances also pursue the same course, as Garlic, Spirits of Turpentine, Balsam of Copaiva, Veratrine—Decoctions of several plants, as the Blue Flag, Seneca Snake-Root, &c. To secure their favorable operation, their administration must be so regulated, as to produce no disturbance of the bowels.

The *third* mode in which Diuretics operate is, by increasing the action of the *absorbents*.

This is done by a class of medicines which produce an impression on the stomach, and by that impression, nausea and diminished action of the arterial system takes place. The arterial action, and the action of the absorbents, are in inverse ratio, so that when the latter is reduced, the former exercises increased activity. Squills, Digitalis and Tobacco, are of this class.

The action of the absorbents is increased by medicines which produce a cathartic impression upon the bowels—Hydragogue cathartics of this character.

The action of the absorbents is increased, and diuresis produced, by medicines which increase the tone of the body in general. Tonics, or nourishing diet, may, under certain circumstances, have diuretic effects.

The action of the absorbents increased by medicines, which exert a stimulant impression upon the system. The preparations of Mercury, or other stimulants of this character.

It must be observed, however, that many of the class are very inefficacious, and it is the common imperfection of the whole, to be very uncertain in their operation—Sometimes the more feeble will succeed when the stronger have failed, and often after every variety of kind and combination has been practiced, the secretion of urine remains unaltered.

Diseases in which Diuretics are useful.

Dropsy is the principal disease.

In these cases there is generally a diminution of the urinary secretion. To re-establish it, becomes a prominent part of the duty of the physi-

cian—Diuretic medicines have, therefore, always properly been administered. They effect the removal of the fluid in some one of the ways I have mentioned. Unfortunately, we are ignorant of the circumstances which cause them sometimes to succeed, and sometimes to fail.

Where any organic derangements exist, no great benefit can arise from the use of diuretics alone—Only useful where there is a deranged condition of the absorbents.

In affections of the *Kidneys*, and in *Nephritic* and *Calculous* diseases, they are useful.

In *Gonorrhœa*.

In *Asthma*, *Dyspnœa*, chronic *Catarrhs*, and other chronic diseases of the lungs.

This class has its powers increased by combination—No class in which a combination of two or more substances, possessing similar powers, is so frequently important as in diuretics.

Thus, the use of Potash, joined with the bitter vegetable infusions, is recommended by Sir John Pringle as an efficacious medicine, and we have derived great advantages by uniting the Bi-Tartrate of Potash with an infusion of Quassia.

The alkaline substances, by acting upon the bowels, are often prevented from reaching the kidneys, so their diuretic effect may often more certainly be secured, by giving an opiate at the same time, according to the practice of Dr. Mead.

A combination of squill with digitalis, and some of the less purgative preparations of mercury, as the blue pill, is occasionally very active in its diuretic operations, and in children, or in old and feeble people, the union of the sweet spirits of nitre with infusions of vegetable tonics, appears to be often very serviceable.

Rules in the administration of Diuretics.

RULE I. The diuretic effect of any article in general, cannot be obtained, should it produce any disturbance of the bowels, the cathartic and diuretic action of medicines being opposed to each other.

RULE II. In the administration of diuretic medicines, it is equally necessary to attend to the state of the skin. If during their administration, these vessels are excited by external warmth, the action of these medicines is diverted from the urinary organs to the exhalents on the surface, and occasions diaphoresis. To produce a diuretic effect, the surface should be kept cool.

RULE III. Diuretics should not, if it can be avoided, be administered to a patient in bed.

RULE IV. When the full effect of the medicine is wished, give diluent drinks freely.

PARTICULAR DIURETICS.

Saline Diuretics—Preparations of Potash—Sub-carbonates and Carbonates.

These operate by entering the circulation, and produce their effects by stimulating the secretion of the kidneys—Employed in their pure and impure state—The ashes of several plants recommended and employed.

They are given in doses of ℥i. to ʒiss., three times a day, and largely diluted with water—Their use continued for some time—Thus employed, their diuretic effect is exerted.

The objection to the Carbonates—Chiefly useful where there is acidity, and other deranged conditions of the stomach—Being not only more unpleasant, but inferior in their diuretic properties to the other combinations of this alkali, they have fallen into disuse.

Acetate of Potash—also Sal. Diureticus—more active. Preparation—Had much reputation, but has declined in general estimation—May be so administered as to act as Purgative, or Diuretic.

Doses—ʒi. to ʒii. as Diuretic, largely diluted with water; ʒii. to ʒiii. as Cathartic.

Bi-Tartrate of Potash—Cream of Tartar—Preparation—found in nature—in the juice of the grape—deposited from wine—most valuable of the preparations of Potash—Employed in cases attended with Febrile excitement.

Administration—dissolve ʒss. to ʒi. and ʒii., in a quart of water, which quantity is drunk during the day.

Form of Dropsy to which it is best adapted.

Experiments of various practitioners, and their success.

It is a useful article, but not as actively diuretic as you would be led to believe from the experiments of the individuals named.

It is generally applicable.

Is agreeable to the taste.

Can be continued longer without exciting disgust, or disagreeing, than most others.

In using this with the other preparations, it is necessary to continue their use for some time—twenty days to two or three months.

Often no diuretic effect for the first twenty days, though afterwards beneficial.

I have used this preparation, and generally well pleased.

It succeeds in anasarca, sometimes in ascites.

Combined with an infusion of Quassia in debilitated habits, may be considered a useful, but not powerful diuretic.

Must expect disappointment in treating dropsy.

Objections to the use of the Bi-Tartrate.

Excites nausea and flatulence.

Weakens the appetite.

Injures the tone of the stomach—hence it becomes necessary to employ others.

Cream of Tartar recommended in *Dysentery*, particularly by Dr. Stokes—vide Lectures, page 93.

Combined with Jalap in the following proportions, it forms a useful hydragogue cathartic :

R. Bi-Tartrate of Potash, $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ii.}$

Powdered Jalap, xv. to xx. grs.

Mix and make into a powder.

Adulterations—Sometimes with white silicious pebbles, bruised into small fragments—sometimes with Tartrate and Sulphate of Lime.

What changes does the compounds of Potash undergo in the digestive organs?

Those preparations formed by a union with vegetable acids are decomposed—the acid is digested, and the potash, probably combined with carbonic acid, enters the system. It is not, therefore, as Acetate or Bi-Tartrate of Potash, that it is found in the circulation, but as Carbonate.

The compounds with mineral acids are not affected in the same manner—they are not decomposed—hence they enter the circulation in their original state, as for example the Nitrate of Potash.

Nitrate of Potash—Nitre, or Saltpetre.

Medicinal Properties—Refrigerant and diuretic—by the former is meant an article which abates heat and thirst, and diminishes the force of the circulation.

Hence it becomes useful in tonic dropsy, given in doses of $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ss.}$, largely diluted with water, or in cider—Its diuretic operation is promoted, and it is less likely to disagree with the stomach, when thus administered.

That this salt is separated by the kidneys, and found in the urine, many facts may be adduced to illustrate.

Much used in *Hæmoptysis*—given in doses of from $\mathfrak{z}\text{i.}$ to $\mathfrak{z}\text{ss.}$ in the twenty-four hours. Its good effects depend upon its stimulating impression upon the capillaries, since the fluids becoming impregnated with this salt are conveyed to the affected part, where it may excite a constriction of these vessels, and an abatement of the hæmorrhage.

STIMULATING DIURETICS.

Tincture of Cantharides.

Natural History of the Cantharides, or fly—Found in all the Southern parts of Europe, particularly Spain. They inhabit the ash, elder, lilac and other trees. They are collected by shaking them from the branches into a cloth spread beneath the tree, and afterwards killed with the fumes of vinegar or sulphur.

Appearance of these insects—

Color, bright green.

Smell, foetid.

The active principle termed Cantharidin.

This article has been long employed in medicine—has a strong determination to the urinary organs.

It is remarkable for its irritating operation upon all the organic structures—These particularly specified. But though exercising an irritating operation on the urinary organs in large doses, occasioning difficult and painful discharges of urine, or its suppression—in well regulated ones, it occasions copious discharges of urine.

It is *proscribed* in habits of a Plethoric or Inflammatory nature.

It is best adapted to the *atonic states* of Dropsy, where the system is much debilitated, and where the use of stimuli is required—From ʒss. to ʒiii. may in such conditions be administered, and a copious flow of urine will commonly be found to take place.

In *Dropsies* which succeed *Scarlet Fever*, or other diseases where tonics are required, the Tincture may be employed in conjunction with Cinchona.

In *Diabetes*—a case is recorded in the North American Archives, in which a cure was effected under the use of the Tincture of Cantharides.

Cantharides is, however, more beneficial in certain local diseases of the urinary and genital organs.

In *Incontinence of Urine*, proceeding from relaxation of the sphincter vesicæ.

In *Incontinence of Urine*, which many young people experience during sleep.

In *Gleets* and long *Protracted Gonorrhœas*, this article has long been much extolled. It is worthy of notice, that when a cure can be accomplished by this substance, benefit is soon derived from its employment.

Where it is beneficial, from the great tendency of Gleets to return, its use should not be discontinued as soon as the discharge ceases, but persisted in for ten days, or longer, after the symptoms have gone off.

In employing this article, begin with a small dose, and increase until its specific effects are obtained.

The following combinations succeed better than the simple article :

℞. Tincture of Cantharides,	ʒvi.
Balsam Copaiva,	ʒii.—Mix.

Dose—x. to xv. drops, three times a day.

Or,

℞. Tincture of Cantharides.
Tincture of Chloride of Iron, each ʒi.

Dose—xx. m. at the beginning—increased.

In *Leucorrhœa*, a disease depending upon a variety of causes, difficult to decide upon, the remedy best adapted. The treatment must have reference to the cause which produces the disease, the local condition of the uterine system, and the general state of the constitution. When it can be employed, it is the practice to begin with a small dose, and increase until a puriform discharge takes place from the vagina. Carried to this extent, it appears to excite a new action, which counteracts the existing diseased one.

In *disordered conditions* of the *genital organs*, proceeding from depraved habits—as seminal weakness—nocturnal pollutions, it is also

employed, and with prospects of success, acting upon the portion of the bladder near which the vesiculæ seminales are situated.

In *Cutaneous diseases* of an obstinate character, combined.

In the opinion of an eminent physician, Cathartics, Tincture of Cantharides, and Fowler's Mineral Solution, skilfully managed, and accompanied with strict attention to diet, will lead to very satisfactory results in the treatment of cutaneous diseases.

A circumstance calculated to weaken the inferences drawn from experiments upon the inferior order of animals, in connection with the human subject, is furnished by this article—which is, that while they are so peculiarly irritating to the human system, there are animals which feed upon them—the hedge hog devouring hundreds with impunity.

Family *Coniferæ*—*Pinus Palustris*—Pitch Pine.

From this species of pine, a resinous juice is obtained by making incisions into the tree. It is thick and tenacious. From it the Oil or Spirits of Turpentine is obtained by distillation.

Qualities—

Light, limpid and volatile.

Smell, strong and penetrating.

Taste, pungent.

Properties—Stimulating—directed to the urinary organs, giving odor to the urine, and even exciting inflammation of these organs.

Acting upon these organs as a stimulant, it has been employed for its diuretic operation, and given in doses of xx. to xxx. m. three times a day, larger doses acting as a cathartic, showing the influence of quantity or dose upon the specific effects of a medicine.

The best form of administering the Oil of Turpentine is, to triturate it with mucilage or honey, and thus diffuse it through some aromatic water, as follows :

℞. Spirits of Turpentine, gtt. xv. to xx.

Honey, ʒiss.

Cinnamon Water, ʒi.—Mix for a draught.

As a diuretic, the Spirits of Turpentine is applicable to the same state of the system as the preceding article—Not often resorted to for its diuretic operation.

In obstinate cases of Gleet and Gonorrhœa of long standing, this article is a very useful auxiliary, combined with the Balsam of Copaiva.

The many and valuable uses of this article will be specified on a future occasion.

Dose as a diuretic, xv. to xx. m., increasing several times a day.

Family *Leguminosæ*—*Copaifera Officinalis*—Copaiva—Balsam of Copaiva.

Allied in its effects to the Spirits of Turpentine—The term Balsam is not correct—It is restricted to compounds of resin and benzoic acid, and therefore inapplicable to this substance—neither is it a liquid resin, but a compound of volatile oil and resinous matter, therefore termed an oleo-resin—Proved to be so by distillation, when a volatile oil passes over, leaving an insipid resin in the retort.

Qualities of the oil—

Highly odorous and pungent; the virtues of the article dependent upon it.

Resin insipid.

This oleo-resin is obtained from the *Copaifera Officinalis*, a tree growing in the West Indies and South America. It is obtained by boring holes in the trunk near its base, from which it flows out rapidly. It is colorless when flowing from the tree, after which it becomes of an amber yellow.

Qualities—

Smell, fragrant and powerful.

Taste, bitterish, heating, aromatic, of long duration in the mouth.

Soluble in alcohol, æther, fixed oils and volatile.

Insoluble in water.

Its essential constituents are—

Volatile oil.

Resinous matter.

A minute portion of an acid, called *Copaivic acid*.

Effects and operation of this article—

In doses of a few drops, it excites the energies of the stomach, and sometimes favors, rather than disturbs the functions of this organ.

In larger doses, it creates a sensation of warmth in the stomach, and gives rise to eructations having the taste of the article, nausea, not unfrequently vomiting. Its continued use often impairs the appetite and disorders digestion.

In still larger doses, as i., ii. or ʒiii., it excites considerable irritation, and this principally exerted upon the large intestines—Effects of this irritation.

Introduced into the circulation and separated by the kidneys—the urine acquires the odor of the Balsam—A portion also passes off by the lungs—hence it is readily detected in the breath of persons taking it.

Diseases in which it is employed—

In disease of the *Kidneys*—not much resorted to in these cases.

In diseases of the *Urino-Genital* organs—In *Gonorrhœa*—*Gleet*—*Leucorrhœa*—and in these cases often exhibited. The period of the disease in which it should be employed. By some it is contended to be adapted to the early stages of the disease, and during the most inflammatory symptoms. By others, the practice is to moderate these symptoms by rest, diluent drinks, moderate and spare diet, and the use of cathartics every other day, until the urgent symptoms have subsided. This the practice recommended.

Its *modus operandi* in curing *Gonorrhœa*—Either by its cathartic and revulsive operation, or by being absorbed, impregnating the urine, and in its passage through the urethra, substituting a medicinal impression for that of the existing disease of the membrane of the urethra.

From its utility in increased and morbid discharges of the mucous membrane, has been employed in *Chronic Catarrhs*, humid coughs, and the chronic affections of the pulmonary organs—Resorted to in

cases where action has subsided, and the discharges kept up from relaxation, and enfeebled morbid action of the vessels of these parts.

Administered in the form of an emulsion, by being rubbed up with mucilage, the yolk of an egg, or with almonds—Employed in diseases of the mucous membrane of the Intestinal canal.

Administered in doses of xx. m. , combined with Laudanum, every four hours, in mucilage or some aromatic water.

Forms of exhibition—

In drops, on sugar, or any aromatic tincture—in red wine, in sweet orange juice.

In the form of mixture as follows :

R. Balsam Copaiva, $\text{3 ii. to } \frac{3}{4} \text{ ss.}$

To be well rubbed with mucilage of Gum Arabic, the Yolk of an egg, or Sweet Almonds blanched, one dozen—add

Water slowly, $\frac{3}{4} \text{ vi.}$

Sweet Spirits of Nitre, $\frac{3}{4} \text{ ss.}$

Laudanum, $\text{3 i.}—\text{Mix.}$

The dose will be half to one oz., three or four times a day—In some cases, advantage is derived by adding to the mixture

Oil of Copaiva, $\text{3 i to } \text{3 ii.}$

The Oil of Copaiva may be administered in a similar manner, and as it is less unpleasant, be substituted.

R. Oil of Copaiva, $\text{3 ii. to } \frac{3}{4} \text{ ss.}$

Powdered Gum Arabic, $\frac{3}{4} \text{ ss.}$

Cinnamon Water, $\frac{3}{4} \text{ ii.}$

Simple Syrup, $\frac{3}{4} \text{ iss.}$

Tincture of Opium, $\frac{3}{4} \text{ ss.}—\text{Mix.}$

The dose half oz., repeated several times a day, increased, or

Combined with Cubebs, as follows :

R. Balsam Copaiva.

Tincture Cubebs, each $\frac{3}{4} \text{ ii.}$

Dose, 3 i. three times a day, in any agreeable vehicle, increasing the quantity.

Or,

Administered in the form of an electuary, as follows :

R. Conserve of Roses, $\frac{3}{4} \text{ ii.}$

Powdered Cubebs, $\frac{3}{4} \text{ i.}$

Balsam Copaiva, $\frac{3}{4} \text{ i.}$

Oil of Cubebs, $\frac{3}{4} \text{ ii.}$

These ingredients to be well mixed together in a mortar, and direct a lump of the size of a marble to be taken three or four times a day. The quantity to be increased.

Or,

In the form of pills—

Balsam Copaiva, $\frac{3}{4} \text{ i.}$

Calcined Magnesia, as much as sufficient to make a mass of proper consistency—it may readily be rolled out, and divided into pills of a convenient size. The pills become more solid after a few hours.

Magnesia appears to act specially upon the Balsam, and to this may be mainly attributed the solidification.

Balsam of Copaiva, administered also in the form of Capsules—Preparation.

In the form of Enema—

Rubbed up with mucilage, or the yolk of an egg.

In this manner it may be given to the extent of 3ii. to one oz. a day. To the enema a little Laudanum is added, to allow of its retention in the rectum and its absorption. Patients treated after this manner were quickly cured in six and seven days, or at least had their symptoms mitigated. By this mode of exhibition, the nausea and vomiting following its administration by the mouth may be prevented.

Preparations of the Balsam—

The Oil as being much less unpleasant, may be substituted for the Balsam, according to the already furnished formula.

The *Resin* is what remains after the oil has been drawn off. It has been administered in pills.

The dose is viii. grs. made into two pills, three times a day. Its properties much impaired.

Consolidated Balsam—prepared by adding the distilled oil to the Resin. Dose the same.

Adulterations—This Balsam is easily adulterated with the thinner oils, or with Turpentine. The adulteration may be detected according to the test of M. Bucholtz, who asserts that if it does not dissolve in a mixture of four pts. of pure alcohol, and one of æther, it is adulterated.

The evaporation of a drop of the suspected Balsam upon a piece of unsized paper, ought to be added. If the Balsam be pure, a resinous spot is left—but if it is adulterated with a fixed oil, it is greasy and soft.

Family *Polygalæ*—*Polygala Seneka*—Seneka Snake-Root.

Grows wild in many parts of the United States, particularly in Virginia.

The root, the part used, is woody and inodorous.

Taste insipid, and mucilaginous at first, but soon changes to an impression acrid and biting.

The bark of the root is most active.

Properties, very various.

It is an active and diffusible stimulus, and acts upon most of the secretory organs—These enumerated.

For its Diuretic property it has been much celebrated, particularly by Dr. Milman, in his treatise on Dropsy.

He relates several cases in which it has been used—some were cured, and others relieved.

The cases appear to have been swellings of the cellular membranes,

but little effusion existing in the cavities. The patients were treated with the decoction of seneka, united with the Bi-Tartrate of Potash.

Dr. Hartshorn, of Philadelphia, has also spoken of this article in high terms, but it was conjoined with the nitrous powders, until Ptyalism was induced.

Dr. Percival has also added his testimony to the use of this article, in the different forms of dropsy.

In our opinion this article is not alone sufficient, but requires the aid of others. In the first case cited, it was combined with the Bi-Tartrate of Potash, and in others with the nitrous powders, and from the acknowledged efficacy of Calomel in quickening the action of the absorbents, much of the success which followed is to be attributed.

In *Hydrothorax* it cannot be trusted.

The Seneka is highly valuable as an Expectorant—Used in the advanced stages of *Pneumonia* and *Pleurisy*—also in *Cynanche Trachealis* or Croup.

Directed to be used in the very commencement of these diseases, upon the supposition that there was something in the acrid and irritating qualities of the root, which was capable of arresting Inflammation of the Pulmonary organs. In all these cases, depleting remedies not to be overlooked.

It is properly employed in the asthenic varieties of Pulmonary Inflammation, and in the declining stages of the more acute forms. When the patient is harassed with a dry cough, difficult expectoration, with slight feverishness and a constricted skin, it will be found to afford great relief.

In *Cynanche Trachealis*, it is employed in similar states of the system.

It is given in the form of strong decoction, combined with Liquorice Root, which takes somewhat from its unpleasant taste.

Dr. Archer's formula was as follows :

R. Seneka Snake-Root, 3 ss.—boil in
Water, 3 viii. to 3 iv.

Dose, a tea-spoonful every fifteen minutes until it operates, which is commonly by vomiting.

The expectorant property of this article depends upon a peculiar acrid principle, which has been called Polygalic Acid. It is to this article that the impression upon the throat, experienced by taking either the decoction or powder, is owing.

The various other uses of this article will be treated of under other heads.

For curing the bite of the Rattle-snake, wholly inefficient.

The decoction, as commonly prepared, is made as follows :

R. Seneka Snake-Root, 3 ii. to 3 ss.

Liquorice Root, 3 i.

Boiling Water, libiss.—boil to one pint.

Dose, half to one oz.

Of the powder, grs. x. to xx.

(c.) *Diuretics which operate by increasing the action of the absorbents.*

The first of this division is the *Scilla Maritima* or *Squills*.

Its natural history has been already detailed.

Properties very various—and they are Diuretic, Expectorant, Emetic, and Purgative.

As a diuretic, it is adapted to all the forms of dropsy, but chiefly useful in Hydrothorax.

Medical treatment in the early stages of *Hydrothorax* does a great deal, principally by means of diuretics, and Squill is the most powerful of any of them.

The solvents of this article are numerous.

Water, Vinegar, Wine, Alcohol, extract its active principles, and any of them are preferred to the powder.

Attention to the doses of this article is very important.

It never operates so powerfully, as when given to the fullest extent the patient can bear without sickness.

Beginning with a small dose, it may be given to the extent of 3 ss. to 3 i. in the twenty-four hours. Carried to this extent, it will be found to operate very favorably, and that in a few days. The urine becomes pale and copious under its use, and proportional relief is obtained in the breathing and in diffused swelling. Whether it will cure, depends upon the cause which has given origin to the disease.

In Hydrothorax when complicated, Squill is combined as follows :

℞. Powdered Squills, grs. ii.

Calomel, gr. i.

Make into a pill—taken twice or thrice a day.

Or,

℞. Nitrate of Potash, grs. x. to xx.

Powdered Squills, grs. ii. to iv.

Make into a powder, and taken several times a day.

Or,

℞. Powdered Squills, grs. iii.

Blue Mass, grs. ii.

Powdered Digitalis, gr. ½.

Make into a pill—to be taken night and morning.

Besides its Diuretic operation, all are aware of its value as an Expectorant in diseases of the *Respiratory* system—operating very beneficial in relieving the lungs when oppressed. It is resorted to in Catarrhal and other Pulmonary affections, when Inflammatory action has subsided.

In *Asthmatic* affections, or Dyspnoea, occasioned by the accumulation of viscid phlegm, it has also been held in the highest estimation.

This article of much efficacy in the diseases of children, connected with increased secretion of mucous in the bronchial passages, and difficult expectoration. The preparations of it are safe, and easily administered—They often excite vomiting—and by stimulating the throat and parts adjacent, they promote expectoration.

The activity of this article much increased by combination with the Polygala Seneka, and Tartarised Antimony, as in the preparation term-

ed *Hive Syrup*—and in Asthma and Dyspnoea without fever, Squill combined with Ammoniacum is very useful.

Official preparations.

The most important are—

1. Vinegar of Squills.
2. Oxymel of Squills.
3. Wine of Squills.
4. Tincture of Squills.

The infusion is a very convenient and useful form of administration, and in my practice one of the most successful in removing dropsical effusions.

It is prepared as follows :

℞. Squill Root, 3 ii.
Bitter Orange Peel, 3 ii. to 3 ss.
Boiling Water, 3 xii.

Dose, half to a wine-glassful, three or four times a day.

Dose Powder, ii. to viii. grs.

Tincture, 3 ss. to 3 ii.

Vinegar, the same.

Family *Scrophulariæ*—*Digitalis Purpurea*—*Foxglove*.

Natural History—

Root, biennial.

Stalk erect, rising to the height of four or five feet.

Leaves large, oval, narrowed at the point, downy.

Flowers, in a long terminal spike, bell-shaped, purple, mottled, having a resemblance to the finger of a glove.

This plant native of England and Germany, but naturalized in this country.

The flowers appear on the second year.

The leaves only are used, and they are gathered when the plant is flowering. They are carefully dried in a warm room, through which a current of air is passing—and when completely dried, may be compressed into moulds, or kept in bottles closely corked, excluded from light and moisture.

Chemical analysis—

From this article a peculiar proximate principle has been obtained, termed Digitalin—It is white, inodorous, crystallizable with difficulty.

Properties, intensely bitter, having all the effects of Digitalis in very small doses.

Tannate of Digitalin—an inferior preparation.

Effects of Digitalis on the system—

It is decidedly narcotic, and seems to be more directly sedative than any other of the class.

The effects upon the system seems to be immediate and direct, with very little of a stimulating operation in the first instance.

In a full dose, it exhausts the powers of the body—lowers the pulse from seventy-five to forty and thirty pulsations in a minute—affects the stomach with nausea and vomiting—affects the brain with vertigo and dimness of sight, &c.

In its action upon the system, it exhibits some very striking properties.

1. Its action upon the pulse.

A strong pulse of the usual or increased quickness, will sink as low as forty pulsations, and sometimes less, and the effect may be kept up for days by a less dose than that which originally excited it.

2. Another striking property—May be given for a considerable length of time, without any sensible action upon the system, when its powers become suddenly developed, and though it is discontinued, its effects will remain for several days—similar in this respect to Mercury.

The term applied to this property is *cumulative*. It will be prudent to suspend from time to time the exhibition of the remedy, in order to guard against the effects of this alarming accumulation.

3. Another property in *Digitalis*—that it is influenced in its effects by the position of the body—First noticed in the Edinburgh Medical and Surgical Journal. The pulse will be observed lower in the horizontal posture, more frequent in the sitting, and still more so in the erect.

Posture must be attended to in studying the effects of this article on the system. If desirable to reduce the frequency of the pulse, the patient must be kept in the horizontal position.

Medical History—

This article was brought into notice by Dr. Withering in the year 1775, though its properties were known earlier. In the early part of that year, his opinion was asked respecting the utility of a family recipe in the cure of Dropsy, in which *Digitalis* was obviously the most important in the compound.

He investigated the properties of the plant for ten years, and then gave the result of his experience in a valuable treatise, published in 1785. The *diuretic* properties of *Digitalis* would appear to be established—and so far, he observes, as the removal of the water will contribute to cure the disease, so far may it be expected from this medicine.

A great number and variety of cases are detailed, and when the disease was *unconnected with visceral obstructions*, and *not encysted*, great relief was afforded, and in the majority of cases, cures were effected. It is these complications which give to the disease its unmanageable and fatal character, and where they do not exist, a variety of remedies will be found quite as effectual as *Digitalis*, in the removal of the effused fluid.

The constitution is to be attended to in its administration—Operates best in a weak and lax fibre, where the cedematous limbs readily pit on pressure—where the complexion is pale and transparent.

Digitalis is not equally useful in all the forms of *Dropsy*.

In *Hydrothorax*, it is much less successful.

In *Ascites*, a remedy of more utility—The condition of the system to be attended to—Where there is any portion of activity in the pulse, and much general strength remaining not to be depended upon—Chiefly beneficial when the pulse is feeble and intermitting—the countenance pale—the skin cold. One fact important to be known is, that when it is favorable, relief is afforded early, and there is no advantage in perse-

vering with it longer than a week, if it does not discover its efficacy in that time. The *modus operandi* of *Digitalis* in these cases.

Digitalis useful in the *Anasarca* which follows *Scarlatina*—Testimony of Dr. Beddoes in this form of the disease, and also Dr. Withering.

To obtain its diuretic effects, it is best administered in infusion. The formula it as follows :

℞. Dried leaves of *Digitalis*, 3 i.
Boiling Water, 3 viii.—Simmer to 3 vii.
Cinnamon Water, 3 i.—Mix.

Dose for an adult, 3 ss. several times a day—children less.

The following directions to be observed—That its use be continued until it either acts upon the kidneys, the stomach, the pulse, or the bowels—and when its effects are exhibited upon any one of these organs, it should be discontinued, and the patient will not suffer from its exhibition, nor in the language of Dr. Withering, will the physician be disappointed in any reasonable expectations.

A *Diarrhoea* supervening, or the medicine acting as a *Purgative*, has impeded the flow of urine, and stopped its diuretic effects—on this account its use should not be continued.

Such are the principal directions and cautions to be observed in the use of this article. Why have we such contrary opinions of its efficacy? They proceed from inattention to the quality of the plant—its preparation—the kind of constitution to which it is best adapted, and the cautions to be observed in its administration.

When carried to the extent of affecting the system, either by the pulse, the stomach, the bowels, or head, we have on several occasions observed its diuretic operation exerted to a considerable degree; and, like other practitioners, began to be sanguine in our expectations of a cure—We have been disappointed, and are convinced that the effusion we call dropsy, is often only a symptom of greater derangement, or of alterations in organic structures, which while they continue, though the effusion may be removed, yet it soon returns; and by exhausting the powers of life, by draining the vascular system, and by injuring the texture of parts into which it is poured, by the confinement of the patient, and the anxiety he suffers, the case terminates fatally. Still we are not to abandon a patient under these circumstances, but approach the treatment with the use of means, which may directly, or indirectly, be made to bear on the case, and *Digitalis*, employed as directed, may prove useful.

The Diuretic operation of *Digitalis* is increased by combination, as follows :

℞. Powdered *Digitalis*, gr. ss.
Calomel, gr. ss.
Dover's Powder, grs. viii.—Mix for a powder.
Or,

℞. Powdered *Digitalis*.
Powdered Squills, each gr. i.
Calomel, gr. ss.—Mix for a pill.

To be taken three times a day.

The next class of diseases in which *Digitalis* has been employed, is in *Hæmorrhages*.

It becomes valuable in this class from the property of reducing the action of the heart and arteries.

This is a property of no small value, since it affords us the means of lessening the circulation without further depletion—Being thus a substitute for the lancet.

In *Hæmoptysis*—In this species of *Hæmorrhage*, when it occurs in a full habit, with a constitution little impaired, pulse full, with general excitement, more benefit will be afforded by venæsection, and other means of depletion, until the tone of the system is lowered.

When this is done, the pulse is often too frequent, and the circulation is so rapid, that if a coagulum is formed, it cannot resist the impetus, but yields, and the hæmorrhage is renewed. Further, venæsection in this state of the system is forbidden, and *Digitalis* is one of our best remedies, for it never fails to lessen the circulation, and to enable the vessel to contract.

In other cases, where the habit is irritable and delicate, attended with cough, pain in the side, quickened pulse, *Digitalis*, with the use of blisters and demulcents, is very usefully employed, and given in such doses as just to affect the pulse, and keep it within the ordinary standard.

In *Uterine Hæmorrhage* it is generally unsuited. This species of hæmorrhage requiring something to constrict the bleeding vessels, or excite contraction of the uterus, and we have better remedies in the Acetate of Lead, Ergot, &c.

Digitalis has been declared capable of curing *Pulmonary Consumption*, and numerous cases of supposed cures have been published—By Dr. Darwin it was supposed, that by its power of promoting absorption and retarding the action of the arterial system, many of the symptoms might be mitigated, and even cured. Accordingly, he says, that in its application to a variety of cases, where the existence of Tubercles was indicated by every symptom, a full and fair trial confirmed the opinion he had entertained. There has been collected from the writings of Beddoes, Kinglake, Fowler, McLean, and others, reports of one hundred and sixty-one cases treated by Foxglove. Of these, eighty-three were said to have been cured, and thirty-five relieved.

Notwithstanding these reports of the utility of *Digitalis* in *Pulmonary Consumption*, candor obliges me to confess that present experience with this article, by no means entitles it to these high encomiums. As a proof of it, I remark, that *Consumption* is still a fatal disease—much so in our country, and still more so in Great Britain, where Dr. Heberden remarks that one-fourth of all the deaths is by *Pulmonary Consumption*.

There are many *Pulmonary* diseases, bearing a close resemblance to *Phthisis*; this article has been employed, and success following its use, has caused it to be considered a remedy in this complaint. The wasting of the flesh which occurs in *Phthisis*, is common to other diseases, with the fever, pain, cough, thick expectoration, difficulty of breathing, &c.

These symptoms are often observed in *Catarrhs*, as a consequence of

Pleurisy, and other cases, in which the patient often recovers. In Consumption, the action of disease is peculiar, and is different from the morbid action occurring in other parts of the body. It generally arises from Tubercles, which are of a nature analogous to Scrofula, being very slow and tedious in their progress. This progress is sometimes completed, and the tubercle heals—but it is often succeeded by a multitude of others, which in succession inflame and suppurate. It is this constant disease to which there is no end, that wastes the system, and renders the case incurable.

The singular property of Digitalis to lower the pulse, without increasing evacuations to any degree, renders it particularly valuable in these cases. Hitherto this object has only been obtained by withdrawing from the circulating fluids, or by producing nausea. Digitalis is so far an invaluable remedy, as it enables the physician, in most cases, to accomplish this object.

With a reduction of the frequency of the pulse, relief is afforded to many distressing symptoms of the disease, as pain in the side, cough, dyspnoea, fever, and if the remedy is resorted to early, and proper attention paid to diet and exercise, much benefit will, doubtless, be derived from its use.

Even when the disease is more advanced, and from the feeble and irritable state of the patient, bleeding can no longer be employed, Digitalis in such doses as keeps the pulse at a more natural standard, may be highly beneficial. But in the more advanced stages, when purulent expectoration, and its train of distressing symptoms exist, nothing can do more than palliate and smooth the avenues of death.

In the *Phlegmasiæ* it has been employed, and spoken favorably of by many. It can only be employed advantageously after the proper exercise of the antiphlogistic remedies—Our efforts will be more successful by the use of such means as are better calculated to restore secretions, than simply reducing arterial action. This is the important object to be kept in view in the treatment of diseases, and we effect it more readily by other remedies.

In *Delirium Tremens*—Dr. Glass, of Wirtemberg, has given the result of his experience in the use of Digitalis in this disease, eleven out of thirteen cases having recovered under its administration. He employed the infusion, and carried it so far as to induce Digitalism.

Digitalis has been employed in *Epilepsy*, but with results not very decided or satisfactory—Manner of administration.

The external use of Digitalis.

This method of employing Digitalis has been recently noticed, as not only a safe mode of employing the article, but an effectual one. Reports from various sources of the utility of Digitalis and Squills, endermically, in the treatment of Ascites and Anasarca.

The abdomen in some instances is blistered, and to the tender surface compresses wet with a strong infusion of Digitalis is applied, or a Tincture of Digitalis, Squill and Soap, rubbed freely and diligently into the skin of the abdomen, night and morning. In a few days, the flow of urine has increased; and in a week, the water has been completely evacuated.

We have had recourse to this method in two instances, but without any apparent advantage.

Forms of administering *Digitalis*—

In Powder, Infusion and Tincture.

Dose, powder, ss. to one grain, made into a pill.

Tincture x. to xx. m., three times a day, in any aromatic water.

Infusion prepared as stated.

When the Narcotic effects of the article is desired, as in Pulmonary Consumption, the powder or tincture is preferred.

When the Diuretic, the infusion.

Symptoms of the morbid operation of *Digitalis*.

They are retardation of the pulse, palpitations, faintings, sickness, purging. There is, likewise, a membranous tensive pain of the head, with a disturbance of the functions of the brain. When these symptoms occur, the medicine must be omitted.

When the symptoms run high, and the poisonous operation of the medicine is exhibited, they must be corrected.

The correctives—an emetic, if the degree of prostration does not prohibit it. Stimulants—as æther, brandy, volatile alkali, &c.—Sinapisms and blisters—Opium has been successfully employed to counteract the deleterious agency of *Digitalis*.

Family *Solanæ*—*Nicotiana Tabacum*—Tobacco.

Allied to *Digitalis* in its structure and effects.

Natural History, already detailed.

Its diuretic property to be considered.

Tobacco was recommended as a diuretic by Dr. Fowler, who published a number of cases of Anasarca and Ascites, as relieved by it.

It has been spoken of by other writers—as Ferriar, and others.

Dr. Garden, a distinguished physician of this city, spoke of the great efficacy of the Alkaline Salt of Tobacco in Dropsies, and from this hint communicated to Dr. Hope, Dr. Fowler was induced to make trial of this article.

Upon the faith of these recommendations, I have employed Tobacco in a few cases of dropsy—But it is a medicine, the effects of which it is very difficult to regulate. In small doses it is a very uncertain diuretic, and in larger doses it causes such distressing nausea, that practitioners have almost ceased to use it—So that I may say, we have much to learn in the administration of the remedy, so as to render it certain or convenient in any cases of dropsy.

These objections to the use of the article, I have obviated, by commencing with a small dose of the tincture, and increasing until some sensible effect was produced.

Thus administered, we have been much pleased with its effects in the cases in which it was employed.

Commencing with a few drops, three times a day, the quantity has been increased to lx. m., three times a day, with effects very decided upon the urinary secretion, frequently observing from three to four quarts discharged during the night—and where there is no organic in-

jury, may be considered a remedy in dropsy, as its diuretic effect is considerable.

From the uncertainty which attends diuretic medicines, it is proper to make trial of a greater number than we are in the habit of employing.

Forms of administration—Infusion and Tincture.

Preparation of the Infusion—

℞. Dried leaves of Tobacco,	3 i.
Water,	3 xiv.
Spirits of Wine,	3 ii.—Digest for a week.

The dose for an adult, sufficient to produce the diuretic effect, is xx. m. three times a day, increasing until some sensible effect is produced.

It may also be given in the form of a saturated vinous tincture. The dose the same.

In giving medicines, it may be observed as a general rule, that they can less readily be retained in the morning, than at any other time. The doses should be smaller at this time of the day, while they may be augmented in the evening.

It should also be noticed, that between constitutions which are very nervous or irritable, or those very robust, or torpid, or long accustomed to the use of Tobacco, the doses will admit of great and surprising variations.

From the sedative action exerted by this article upon the heart and arteries, closely allied to Digitalis, it has been employed in diseases of the chest.

In chronic *Catarrhs*, *Phthisis Pulmonalis*, and other chronic diseases of the Lungs, it is an article more to be relied upon, in some cases, than Digitalis.

It is given in the same doses, x. or xx. drops, three times a day, in a little water.

Family *Colchiceæ*—*Colchicum Autumnale*—Meadow Saffron.

This plant is a native of England and Germany.

Root perennial, bulbous, brown coat externally, size of a tulip, fleshy, and contains a milky juice.

Flower purplish, appearing in the Fall, without stem or leaves—anthers yellow.

Leaves appearing in the spring, twelve inches long, flattish, dark green.

Different opinions are expressed of the sensible qualities of the root.

By some said to be void of taste and acrimony.

By others highly acrimonious. These contradictory statements are readily explained by the season of the year when the roots are taken out of the ground. They are inert in autumn, because flowering—inert in the spring, because the leaves appear—active in mid-summer, not being engaged in giving nourishment to the leaves or flowers.

An alkaline principle has been obtained from the root, and termed Colchicine—a very active substance—one-tenth of a grain given to a cat, caused such copious alvine discharges, as to occasion death.

The root of this plant was introduced into practice by Baron Storck, who employed it in the form of an oxymel in the Hospital of Vienna, in *dropsical cases*.

Prepared as follows :

℞. Recent root sliced, ʒi.

Vinegar, ibi.—digest with a gentle heat

forty-eight hours, strain—add honey in the proportion of two parts to one of the vinegar—boil to a proper consistency. Dose, one drachm, increased to one oz.

With this oxymel, cases of dropsy were cured which were considered desperate.

This preparation still popular in France and Germany, but little known to us. It has been superseded by the use of the Colchicum Wine, which is prepared in the following manner :

℞. Fresh Root of Colchicum, sliced, ʒ iss.

Sherry Wine, ʒ xii.—digest for two or three days, and filter through paper.

This is a very active preparation, more so than the oxymel, and when given in dropsical cases, seems to remove the swelling by its strong cathartic operation, very copious watery discharges being produced by it—The cure is then completed by the use of Tonics.

It is given in doses of thirty or forty drops, three times a day, and thus administered it operates very actively, the cathartic operation continuing several days after its use has been suspended.

It is in other diseases that it is used with more advantage. These are *Gout* and *Rheumatism*. The former disease possesses a considerable connection with the state of the alimentary canal, and it has been very successfully treated by very free and copious evacuations. Besides a strong purgative operation, it possesses considerable *sedative powers* in these diseases, exercising a distinct influence over these forms of specific inflammation. By virtue of this sedative influence, there follows soon after its administration complete relief to the violent pains which existed, and sleep commonly ensues. In the morning a severe purging takes place of black foetid matter, with nausea, and a profuse diaphoresis. With the removal of these symptoms, the disease has completely disappeared.

The power of Colchicum to alleviate an attack of gout is admitted by all, but some difference of opinion exists as to the extent of its power, and the propriety of employing it—It alleviates a paroxysm of gout, but that alleviation is *palliative*, not *curative*—It has no power to prevent a recurrence of the attacks. According to Scudamore, it renders the disposition to the disease stronger in the system.

It came into general practice from being thought to be similar in composition to an empyrical medicine called Eau Medicinale, employed eighty years ago by a French officer in the service of the King of France. The composition has never been discovered, but supposed to be a combination of drastic and narcotic substances. Most practitioners concur in the opinion, that it is a vinous Tincture of Colchicum.

Dr. Scudamore recommends the following draught :

R. Magnesia, grs. xv. to xx.
 Sulphate of Magnesia, ʒi. to ʒii.
 Vinegar of Colchicum, ʒi. to ʒii.
 Distilled water, as much as is sufficient.

Sweetened with any pleasant syrup.

The dose of the Tincture is 200 drops at bed time—

Or,

xxx. to xl. m. three times a day—in these doses producing very copious watery discharges.

It has been employed in the treatment of *Rheumatism*—in *painful chronic diseases*, as an alterative, and said to have been beneficial—A tincture of the seeds has been employed in Rheumatism, in preference to the wine, and is prepared as follows :

R. Seeds of Colchicum Autumnale, ʒ ii.
 Spanish Wine, ℥ij.—Digest.

Dose xx. to xxx. drops, increased to i. drachm, two or three times a day.

Thus employed, it has been found beneficial—relieving pain and removing the disease in a short time. The proper period to have recourse to this article is, after the Inflammatory symptoms are abated by the use of antiphlogistic remedies. Has been spoken of in very favorable terms by Dr. Armstrong in Rheumatism, and he considers it capable of giving more speedy and decided relief, than any other single remedy he has employed. Its effects are to reduce the action of the heart and arteries, to lessen the animal heat, and abate pain.

The tincture is also employed as a liniment in the same affection.

It has been recommended in the treatment of *Inflammatory diseases, acute and chronic*—Possesses much power in overcoming Inflammatory action, so as to become a useful auxiliary to the lancet, and in some instances to supersede its use.

The dose of the tincture is ʒi. night and morning, in the more violent cases, and ʒss. in those of less severe character, until pain and fever are abated.

Colchicine and Veratrine.—Upon the alkaline principle obtained from the roots of the Colchicum Autumnale, and the root of the Veratrum Album, and the seeds of the Veratrum Sabadilla, a few remarks may be made.

The family of the Veratrum, or Hellebore tribe, has been long known in the Materia Medica, and are remarkable for their extreme activity when applied to the human system, producing, in small doses, violent vomiting and purging, hypercatharsis, with bloody stools and tenesmus.

To the alkaline principle obtained from these plants, the term Veratrine has been applied, and to this principle is owing their extreme activity and dangerous character.

Sensible properties—

UnerySTALLIZABLE powder.

Taste acrid.

Odor little, but excites sneezing.

Taken internally, in small doses, it excites violent vomiting, purging, and all the effects of the narcotico acrid poisons.

Applied to the skin in the form of ointment, it causes a sensation of heat and tingling in the part, and somewhat similar sensations in distant parts.

The diseases in which it is employed—In *Neuralgic affections*, *Tic Douloureux*, *Paralysis*—applied externally in the form of ointment, in the proportion of

A scruple of the Salt.

Lard, 1 ounce.

The frictions are to be continued, until the heat and tingling caused by the Veratrine, have acquired considerable intensity. It fails in the great majority of cases according to our experience, though in some few, its effects are highly beneficial.

In *Rheumatism*, when of the neuralgic character, it may be employed externally and internally.

In *Dropsy*, applied endermically, it acts as a diuretic, and has afforded relief.

Has been recommended in some affections of the *Heart*.

Taken internally, and applied externally, it has produced a diminution of the frequency and force of the pulsations of the heart, and in some cases, where it has been more excited than natural, restoration of a regular circulation.

Mode of administering—

Given in pills, or in spirituous tincture.

Pills of Veratrine—

℞. Veratrine, grs. ii.

Powdered Liquorice Root, grs. xii.

Ext. of Hyosciamus, grs. vi.—mix and make

into xii. pills, one three times a day.

Tincture of Veratrine—

℞. Veratrine, grs. ii.

Sweet Spirits of Nitre, ʒi.—Mix.

The dose is xx. or xxv. m. in a wine-glassful of water, two or three times a day.

Ointment of Veratrine—

℞. Veratrine, ʒi.

Lard, ʒi.—Mix. The size of a hazel-nut to be rubbed carefully in the morning and evening, or oftener, for from five to six minutes.

Diuretics varied in their action.

INDIGENOUS DIURETICS.

Family *Iridaceæ*—*Iris Versicolor*, or *Blue Flag*.

Botanical description—

Root of the plant, thick and creeping.

Leaves ensiform.

Flowers terminal, racemose.

Found in all parts of the U. States, inhabiting swamps and meadows.

The root is the part of the plant employed.

To the taste it is nauseous, followed by a sense of heat and acrimony in the fauces.

The effects dependent upon an acrid juice which exists in the root, and which when expressed, has been considered a local application in several diseases.

It is possessed of cathartic properties, but it is not likely to be employed for this purpose, as it is apt to occasion a distressing nausea, like sea sickness, with prostration of strength, &c. It will never be resorted to when others can be obtained.

Its diuretic properties are considerable, and for this purpose was recommended in high terms by the late Dr. McBride, of this city.

It is given in the form of decoction, combined with Button Snake-Root, as follows :

℞. Take of the Root of the Iris Versicolor ; of the	
Button Snake-Root, chipped small, each	℥ i.
Warm Water,	iv. lbs.—boil to
℥ ii., strain—add of	
Powdered Nitrate of Potash,	℥ ii.
Spirits, brandy, or whiskey,	℥ ii.

Dose—a wine-glassful three times a day for adults, increasing or diminishing the dose, as upon trial may be found necessary.

It will sometimes at first act as an emetic, but generally as a cathartic, or diuretic, particularly the latter, and ought to be given in sufficient doses to operate as freely as the patient's strength can conveniently bear.

This medicine is so quick in its effects, that if it does not succeed in a few days, or in a week, in producing a very perceptible change, it may be discontinued.

The testimony of several practitioners in favor of the utility of this article, and cases cited illustrative of its beneficial operation.

Dr. Bigelow has employed a tincture of the Iris, in small doses, with several persons affected with Hydrothorax and Anasarca. It was evidently, he says, of great advantage to a majority of those who took it for a certain time.

Family *Umbelliferae*—*Eryngium Aquaticum*, or *Yuccifolium*—Button Snake-Root.

Description of the plant—

Root tuberous and premorse, or bitten off.

Stem three or four feet high.

Leaves twelve to eighteen inches long, one to one and a half inches wide, sword-shaped, fringed with soft spines.

Flowers capitate.

This plant a native of the Southern States.

The root is the part used.

To the taste it is pungent, bitter, and aromatic.

Its medicinal properties are diaphoretic, expectorant, sometimes emetic, and diuretic.

It was much esteemed by the late Dr. McBride, in combination with the preceding article, in the treatment of *dropsical cases*. For formula, vide *Iris Versicolor*.

It has also been employed in the form of Tincture, and may be resorted to advantageously when other means have failed.

Dose Tincture—i. draehm two or three times a day, increased.

A Tincture of this article a very popular remedy in some of the stages of *Dyspepsia*.

Family *Ericinæ*—*Pyrola Umbellata*—Winter Green—Pipsissewa—Bitter Sweet.

To be found growing in most parts of the United States, in shady woods.

Description of the plant.

Root woody and creeping.

Stems two to four inches high.

Leaves in whorls, evergreen, coriaceous.

Flowers in a small corymb.

All parts of the plant are active.

The taste of the plant is bitter and sweet, combined with a moderate degree of pungency.

It has been considered one of the remedies derived from the Indians, and was employed by them in all disorders which they ascribe to diminished secretion of urine, or which are cured by an increase of that secretion.

Spoken of in high terms by Dr. Summerville, in a paper in the *Medico-Chirurgical Transactions*, for its diuretic operation.

A case is related by him of its efficacy, in which with an increase of urine, there was an augmentation of strength and improved appetite. Though the case improved much under the use of the article, yet it finally terminated unfavorably—the good effects of the *Pyrola* being however fully manifested.

To remove the fluid, by which dropsy is characterized, is not to cure the disease, of which the fluid preternaturally accumulated is often only a symptom, or remote effect. But since that is often the only relief we can aim at, it must be acknowledged to be a useful article, since it is not only diuretic, but tonic, and free from any deleterious qualities.

Form of administration—A strong infusion of the whole plant, or decoction, prepared as follows :

Roots, stalks and leaves, 1 oz.

Water, 2 pints—boil until it yields a pint of strained liquor. This quantity drank daily.

Also employed in diseases of the urinary organs—in *Ischury* and *Dysury*, and in *Nephritis Calculosa*—possessing properties nearly allied to *Uva Ursi*.

Externally used as a wash in several species of ulcers with success.

Pyrola Maculata—Spotted Winter Green.

Possesses properties similar to the foregoing, being Tonic and Diuretic.

Family *Aloideæ*—*Aletris Farinosa*—Star Grass.

Botanical description—

Root tuberous and perennial.

Leaves radical, expanding, and in consequence of being spread out close to the ground in a radiated manner like a star, the plant has been called Star Grass.

Stem, one to three feet high.

Flowers in a spike.

It grows in most parts of the United States, in damp pine barrens.

Properties—To its diuretic, is added considerable bitterness, and is used in cases of dropsy where tonics are required.

Infused in spirits, it is employed in cases of Intermittent Fevers, attended with dropsical swellings.

It is a popular remedy in Dropsy, administered in the form of a strong infusion, or decoction, of the root and leaves, drank freely, alone, or combined with other remedies. It is not unpleasant and agrees well with the stomach.

I have employed it in some cases—In these its diuretic action has been manifested, but the patients did not recover, owing to the general disease of the habit.

The decoction is prepared as follows :

R. Root and leaves of the *Aletris Farinosa*, 3 ss. to 3 i.

Water,

℞iss.—simmer to ℞i.

Dose, as much as the stomach will bear.

Family —*Achyranthes Repens*—Forty Knot.

Botanical Description—

Root perennial.

Stem creeping, hairy, and villous at the joints.

Leaves sprinkled with hairs, opposite, one leaf generally larger than another.

Grows in dry soils, along fences, &c.

Useful for its diuretic properties in *Ischury* and *Dysury*.

These complaints of frequent occurrence in old persons, and are caused by calculi or gravel, irritating the neck of the bladder, or lodging in the urethra.

Diuretics useful under these circumstances.

Useful also in Dropsy.

Administered in decoction of the whole plant—a handful to a pint and half water, simmered to a pint, and taken freely, aided by the addition of the Saline Diuretics.

There are various articles which are useful in domestic practice. They are the leaves of the

Cynara Scolymus, or *Artichoke*, bruised and steeped in gin, and taken in moderate doses during the day.

The root of the *Cochlearia Amoracia*, or Horse Radish, taken in the form of a strong infusion.

The *Semina Sinapi*, or Mustard Seed, unbruised, and taken in the dose of a tea-spoonful, two or three times a day.

The *Aliaceæ* have been much employed.

The expressed juice of the Garlic and Leek, has been recommended at different times.

The *Apium Petroselinum*, or Parsley—Useful in strangury—In suppression of urine occurring in children—Employed in the form of decoction of the root, alone, or combined with the Nitrate of Potash.

Water Melon Seed tea, prepared in the following manner :

Of the bruised seed, 3 ii.

Boiling water, ℥i.

Dose, a gill every two hours.

General Principles—

The following principles will give a very good idea of the extent of operation of this class of remedies.

1. Dropsies produced by an obstruction to the circulation, yield to bleeding and gentle diuretics, provided the cause of the obstruction is not incurable. Digitalis is useful when this obstacle is hypertrophy of the heart.

2. Dropsies produced by the sympathetic influence of a chronic inflammation are rarely curable, because such inflammation seldom occasions dropsy, till the seat of the inflammation is changed in its structure. The treatment must be directed solely to the chronic inflammation, and the diuretics such as do not irritate the digestive organs.

3. Dropsies which depend upon an accidental defect in the urinary or perspiratory secretions or excretions, will yield to the establishment of these by the proper means. Diuretics and even purgatives will cure them, but we must take care to remove the accompanying vascular plethora, and not to exasperate the phlogosis which may co-exist.

4. Dropsies which result from bad digestion, and assimilation, disappear under the influence of tonics, good air, and good aliments.

5. Dropsies resulting from hæmorrhages, or other evacuations, are cured by tonics, good food, and active diuretics—but we should be cautious in such cases of too suddenly restoring the strength.

In dismissing this class of medicines, we are, by an intimate connection, led to consider the morbid conditions of the urinary secretion, and to take a brief view of those medicines, the object of which is to correct and remove them.

I shall, therefore, proceed to Lithontriptics and Antilithics.

DIVISION 7.

LITHONTRIPTICS AND ANTILITHICS.

EXPLANATION of these terms—

The consideration of the urinary secretion has enlisted much atten-

tion, on account of the very singular products which have been obtained from it, and from its intimate connection with many diseases.

In its healthy state, it consists of many acids and salts, and it is from the predominance of a few, or their varied combination, that calculi are derived.

The several principles are—

1. Phosphoric Acid.
2. Phosphate of Lime.
3. Phosphate of Magnesia.
4. Carbonic Acid.
5. Carbonate of Lime.
6. Uric Acid.
7. Albumen and Gelatine.
8. Urea.
9. Muriate of Soda.
10. Phosphate of Soda and Ammonia.
11. Muriate of Ammonia.

With other salts, according to the state of health, or disease.

Upon a few of these substances offer some remarks—they are

Phosphorus, Uric Acid, Albumen and Gelatine, Urea—various salts.

Such being the nature and composition of urine, it may be supposed that when the quantity of these substances is augmented beyond what can be held in solution, urinary concretions or calculi would be found.

Particular states of the constitution, give rise to the formation of these ingredients, and when carried to excess is called the Lithic Diathesis. This state of the system is probably intimately connected with the deranged condition of the alimentary canal, and the first link in the chain of causes, giving rise to the production of these substances, has its origin in the stomach.

The different substances which enter into the composition of urinary calculi, may be arranged under the following heads :

1. Lithic or Uric Acid.
2. Phosphate of Lime.
3. Ammoniaco Magnesian Phosphate.
4. Oxalate of Lime.
5. Cystic Oxyd.

Besides others produced by the combination or admixture of these ingredients.

General appearance of the Calculi in the Bladder.

1. Lithic Calculus—Of a brownish or fawn color, hard and inodorous—soluble in solutions of the alkalies, insoluble in the acids. It is estimated by Dr. Prout, that at least two-thirds of the whole number of calculi originate from this acid.

2. Bone Earth Calculus, or Phosphate of Lime—Of a pale brown color, composed of laminae, which separate readily from each other. It is dissolved by the acids.

3. Triple Calculus, or Ammoniaco Magnesian Phosphate—It is of a white color, and less compact than the preceding. It is dissolved in most, if not all the acids.

4. Mulberry Calculus, or Oxalate of Lime—named from its resemblance to the mulberry—readily dissolved in the nitric and muriatic acids.

5. Cystic Oxyd—Of a compact structure, not laminated, appears as a mass confusedly crystallized. Dissolved by acids and alkalies.

6. Fusible Calculus—Whiter and more friable than the preceding—resembles a mass of chalk, and leaves a white dust on the fingers—acquires a large size, moulding itself into the contracted cavity of the bladder. It is dissolved by the sulphuric and muriatic acids.—*Vide Marcet on Calculous Diseases.*

To that state of the constitution which favors the production of these substances, the term Lithic Diathesis has been applied.

It is not known exactly in what it consists, or by what modification of vital chemical actions those changes are produced, which give rise to these concretions.

It is probable that they are intimately connected with the deranged conditions of the alimentary canal, as calculi are always accompanied with indications of impaired digestion, and the first link in the series of actions has its origin in the stomach.

This probable connection is supported by the analogy with other diseases; these concretions taking place in gout, and the well known connection between the attacks of gout and alimentary derangements.

The importance of the connection of the lithic diathesis with impaired digestion cannot be too often repeated, when it is considered, that in all cases of calculous diseases, it is necessary to pay particular attention to the general state of the patient's health, and along with medicines usually called solvents, to pursue a tonic and invigorating plan with respect to the stomach. The medicines we term antilithic, are more or less tonic in their operation.

Dr. Prout, in his work upon Calculous Diseases, insists very strenuously upon the connection, and has pointed out very fully the symptoms which precede these earthy deposits.

They consist, he says, of great irritability of the system, derangement of the chylopoietic viscera in general, flatulence, costiveness or diarrhoea, the stools being of an unnatural color.

The first object then to be attended to, is to improve the condition of the digestive organs, and to incite them to a more healthy action—Hence the reason of a class of medicines termed Antilithics.

The other class of medicines, or Lithontriptics, are employed during the formation of urinary calculi, or after they are formed.

To produce a beneficial effect, these medicines are taken into the circulation, the urinary secretion becomes impregnated with them, and thus a solvent operation is exerted upon the concretions which exist—That many substances pursue this course, we have already endeavored, on many occasions, fully to set forth, and hope to have established.

But it might be questioned, whether they can be conveyed into the bladder of such strength as to exert a solvent operation upon the concretions which exist.

When these concretions attain any size, all will agree, that but very little benefit can arise from their use, and the impossibility of effecting

a solution of them. Indeed, we might almost as soon expect that the stones in the street would be dissolved by the rain, as that these substances could be removed by any course of internal treatment.

Still they may be beneficial in relieving the symptoms, and to such an extent have they been relieved, as to induce the belief that they had been dissolved, though they have been found after death imbedded in cysts, or their surfaces smoothed and polished, rendering it tolerably certain that they had been acted upon by these medicines.

The medicines which are employed for these purposes, are divided into those of an alkaline and those of an acid character.

That by a course of alkaline medicines the urine may be deprived of its acid qualities, I believe there will be no hesitation in admitting, and that it may even become decidedly alkaline, and capable of dissolving lithic acid calculi.

But with regard to the acids, the question is not so easily settled, and particularly as the urine is decidedly an acid fluid.

Mr. Brandt has, however, determined, by experiments, that they are capable of being conveyed into the bladder, and this he has more especially endeavored to ascertain by experiment with the carbonic acid.

But admitting that neither of these substances are taken into the circulation, still as they correct the condition of the digestive organs, from a state of acidity or alkalescence, they thereby modify the action of the kidneys, and, of course, their secretions.

The conclusions then I would support upon the action of Lithontriptic medicines, are as follows:

1. That these medicines are not entitled to be considered as solvents of stone in the bladder.

2. That in small calculi, or gravel, or the forming stage of the disease, the symptoms derived from this cause, with the concretions, have been relieved, and dispersed, by the proper and judicious use of alkaline or acid medicines.

3. That in advanced stages of the disease, or after stones exist in the bladder, the symptoms of irritation produced by them, have been so much relieved by the use of Lithontriptic medicines, that the patient's life has been rendered easy and comfortable, to such a degree, by changes induced from chemical actions upon the surface of the stone, as to excite a belief that they had been dissolved, though they have been discovered in the bladder after death.

4. That even supposing these medicines incapable of exerting any action upon the urinary organs, yet, by correcting the morbid condition of the alimentary canal, either from a state of acidity or alkalescence, that they thereby disturb those affinities, which, in the subsequent processes of assimilation and secretion, give rise to calculous affections.

The last, and a most important question, remains to be considered. How are we to discover the nature of the calculous secretion, so as to direct a suitable remedy? This must be considered a question of primary importance, for without some principles to guide us, our practice is but empiricism, and failing in our attempts to afford relief, we decide that all is conjecture and uncertainty, that the practice is based on an

unstable basis, when in fact the fault is not in the medicine, but in our insufficient knowledge of its application.

In the inquiry, how are we to be directed in the employment of a suitable remedy?

For this purpose we must examine the sediment which is deposited by the recent urine, or we must analyze the small calculi which are passed with the urine.

Here is presented a specimen of calculi passed from a patient whom we were called to visit, for what was called a gravel complaint. It was necessary to know the composition of these concretions before a proper remedy could be administered. We had them analyzed, and determined that they were lithic or uric acid. The patient was placed upon the use of alkaline medicines, and in a few weeks they were entirely dissolved, the urine was voided free of them, and has so continued, though several months have elapsed since he was first seen. To show the importance of the principle, suppose that we had proceeded to administer acids, the evil would, undoubtedly, have been increased.

As a general rule, the acid sediment is of a red color, and this is a circumstance which may aid us in the investigation. When this sediment makes its appearance in urine upon cooling, and when particles are discharged with the last drops, it is an evidence that the acid qualities of the urine are in excess, and under these circumstances the alkalis are the proper remedies.

We are not to use them incautiously, for by their long continued use, we may not only deprive the urine of its acid qualities, but render it decidedly alkaline—and thus, in removing a deposit of an acid character, we may form one of an alkaline.

But urine which deposits a sediment of a rose, red, or brick dust color, is not always an evidence of a disposition to calculous—It is often a symptom of other organic derangements—It is often an evidence of impaired digestion, and it not unfrequently occurs where there is hepatic, or splenic disorders—So that you will be on your guard, and not pronounce every case where this occurrence manifests itself, as of a calculous character. It is only when taken in connection with other symptoms, as frequent micturition, pain in the region of the bladder, bloody urine, with the discharge of small calculi, as we have shown you, that we determine upon the presence of calculous.

It might be some satisfaction to know, and it may give to our medical treatment more simplicity to be informed, that, according to the opinion of Dr. Prout, two-thirds of the whole number of calculi originate from lithic acid.

The next deposits most frequent, are of an *Alkaline* character—They consist of the Phosphate of Lime, and the Ammoniaco Magnesian Phosphate.

This sediment is usually of a white color, and whenever it appears, it is an evidence that the acid character of the urine, by which it is held in solution, is diminished. When, therefore, this white sand is noticed in connection with other symptoms, which are its invariably following meals, and its being observed in the urine, not merely as a deposit upon

cooling, but at the time the last drops are voided, we will find that the internal use of acids will, in most cases, diminish or remove it.

You may, by an experiment, cause this deposit to take place, by adding a solution of Potash or Soda to recent urine, when it will be thrown down.

Hence, therefore, the alkalies, as well as the acids, should be used with caution, as by too long use of them, the urine may be so changed, that the phosphates may be formed.

It was at one time considered that the alkalies should only be employed in their caustic or pure state, but they cannot reach the bladder in a caustic state, combining, as they would, with the carbonic and other acids in their course. Experience has determined that the carbonates are equally valuable, and less likely to *disagree with the stomach*.

The alkalies, even though they do not act as solvents, are often useful by allaying irritation of the bladder, promoting the flow of urine, and thus mitigating symptoms.

ANTILITHICS.

DEFINITION—Under this head are comprised Tonics and Astringents. From what I have said of the disordered conditions of the digestive organs in calculous cases, it would naturally be inferred, that our first object would be to correct their derangements. For whatever will improve their powers of action, will prevent the development of those principles, which lay the foundation of, and are very intimately connected with, the production of urinary concretions. For any excess of acidity, or alkalescence, in the *primæ viæ*, may be considered as exciting causes of similar conditions in the urinary secretions.

Tonics, and whatever promotes digestion, may be considered as valuable resources.

Astringents are also useful as tonics, but, in addition, they seem to have some power to relieve the symptoms, which attend the presence of calculous in the urinary passages. They have, therefore, been employed almost at all times, and by most eminent physicians. That the symptoms may be relieved, without the stone being removed, has been sufficiently proved, and among the medicines which operate in this manner, astringents may be mentioned.

Uva Ursi, which has been so long celebrated, seems to operate in these cases by virtue of these principles.

Dr. Cullen further supposes, that it is useful by absorbing acid in the stomach, but this operation is very improbable.

Astringents are, therefore, useful by their tonic impression—they are also useful by lessening the sensibility of the bladder, and probably lessen the acrimony of the urine.

Of the Astringents employed as Antilithics—

Family *Ericaceæ*—*Arbutus Uva Ursi*—Bear Berry.

Description of the plant.

It is an evergreen creeping plant.

Stems procumbent, branches trailing.

Leaves alternate, oval, firm, deep green upper surface, paler underneath.

Flowers flesh color, in small clusters at the end of the branches.

Berries red.

Very common in many parts of Europe, and in the Northern parts of the United States.

Sensible properties—

Considerable bitterness and astringency, abounding in a large proportion of Tannin.

They yield their active principles to water.

The leaves of this plant have been long known in the *Materia Medica*, and were employed in diseases requiring astringents. They had declined very much in practice, until their use was revived by DeHaen, in the middle of the last century, as a useful and efficacious medicine in the treatment of *nephritic* and *calculous* affections. This physician, who practiced medicine in Vienna, and who had the superintendence of a very large Hospital, speaks of it in very high terms, as valuable in relieving the symptoms of calculous—so much so, that under its use the patients continued free from pain or inconvenience in making water, though the catheter showed that the calculous still continued—that others who seemed to be cured, relapsed on leaving off the medicine, and were again relieved upon repeating the use of it, while others obtained only temporary and precarious relief.

The efficacy of this article in nephritic and calculous cases, has been variously represented by different writers on the *Materia Medica*. By some, it has been represented as merely possessed of diuretic properties, and having no effect in relieving calculous, or other diseases of the bladder.

The weight of authority is decidedly in its favor—The testimony of the late Dr. Wistar. From the testimony of various individuals, there is no doubt that it proves a palliative for calculous symptoms in many cases, and prevents their appearance.

In *Nephritic* affections a valuable medicine, particularly in *N. Podagrica*, or depending upon gout.

Its employment preceded by purgative and depleting medicines, which are to be repeated at proper intervals.

In *Cystitis*, or Inflammation of the bladder, in *Catarrhus Vesicæ*, in suppurations of long continuance in the kidneys, bladder, and its appendages, this medicine will be found useful.

In *Gonorrhœa* and *Gleets* of long standing, useful in the form of decoction.

Many other applications of this article we shall not detail.

Forms of administration—Infusion and Decoction.

℞. Leaves of *Uva Ursi*, bruised, 3 ss.

Water,

3 xvi.—Boil ten minutes.

Dose, 3 i. to 3 ii. every hour or two.

Powder, ʒ i. to ʒ ii., three or four times a day.

treatment, by restoring his appetite, has been to restore his strength, and while promoting the functions of the bowels, giving to them greater regularity, it exerts also a diuretic operation. He also thinks that some change has taken place in the *structure* of the calculi, that they are softer, more readily broken down by the muscular action of the urethra, and expelled in a more pulverulent form.

The occurrence of this case, and the beneficial effects produced from Capsicum, have contributed very much to strengthen the opinions I had formed of the Antilithic powers of medicine.

Family *Liliaceæ*—*Allium Sativum*—Garlic.

Owes its Antilithic properties to its stimulant and stomachic operation in enfeebled digestion. From its stimulus being powerful and diffusible, it is used under the same circumstances, and same advantage, as Capsicum.

The dose is half a garlic, or half a table-spoonful of the expressed juice.

The *Leek* is said to be equally useful, and may be administered in the same way.

Family *Rutaceæ*—*Diosma Crenata*—Barosma Crenulata, Buchu, or Bucku.

The leaves of several species of *Diosma* are known in the shops as Buchu. They are intermixed with stalks and leaves.

They are smooth, shining, serrated.

Their consistence coriaceous.

Their color pale or yellowish green.

They are oval, oblong, or obovate.

Might be taken for Senna, differs only in color.

Properties—*Aromatic, Stimulant and Tonic.*

Taken in moderate doses, it promotes the *appetite, relieves nausea and flatulence*, and acts as *diuretic and diaphoretic*.

Buchu has principally been employed in *chronic maladies of the urino-genital organs*.

Though the plant has been long known, it was not employed in medicine until 1823, Dr. McDowell in that year giving a most favorable account of its good effects. It has since been employed by a considerable number of practitioners, and its remedial powers fairly tried.

It seems to be principally adapted to chronic cases, attended with copious secretion.

In *Chronic Inflammation of the mucous membrane of the bladder* attended with copious discharge of mucous, it frequently checks the secretion, and diminishes the irritable condition of the bladder, thereby enabling the patient to retain his urine for a longer period—but it has also failed to give relief.

In irritable conditions of the *urethra*, and in *gleet*, it has proved serviceable. In this last disease, worthy the attention of medical men.

In *Lithiasis*, attended with increased secretion of uric acid, it has been given with considerable benefit by Dr. Carter, and others, and has

appeared to check the formation of this acid. It should be given in these cases in combination with alkalies.

Administration—In Powder, Tincture and Infusion.

Powder— \mathfrak{z} i. to \mathfrak{z} ss.

Infusion— \mathfrak{R} . Diosma C., \mathfrak{z} i.; water, \mathfrak{lb} i.—macerate for two hours in a lightly covered vessel—strain.

Dose— \mathfrak{z} i. to \mathfrak{z} ii.

Tincture— \mathfrak{z} i. to \mathfrak{z} iv.

Of Diet as an Antilithic.

The secretions being materially influenced by the ingesta, the remarks on this subject cannot be considered irrelevant.

In experiments upon birds, it has been ascertained by Dr. Wollaston, that the proportion of Uric Acid voided with their dung, would be much influenced by the diet upon which they were fed—That where they fed upon grass wholly, the proportion of Uric Acid was extremely small—That when to the vegetable, a portion of animal food was added, the quantity of Uric Acid was greatly increased—That when feeding wholly upon flesh, the proportion was manifestly greater, and seemed to be little more than Uric Acid.

It seems, consequently, deserving of inquiry, what changes might be produced in the urine of any one animal, by such alterations of diet as its constitution would permit—for, as far as any inference could be drawn from the above experiments, it would seem that persons subject to calculi, consisting of Uric Acid, as well as gouty persons, in whom there is always an excess of the same matter, have much reason to prefer a vegetable diet.

The preceding observations will be of much use in determining our practice, as to the propriety of an animal or vegetable diet for those laboring under an excess of Uric Acid. The experiments of Dr. Wollaston are so ingenious and satisfactory, that it would be hardly admissible to doubt what has been so ably proved. Independent of these experiments, a week's abstinence from animal food has been known to relieve a fit of gravel of the Uric Acid character, when alkalies were of little avail, and in other cases, the same plan has been successfully adopted.

These observations of Dr. Wollaston, of the connection of Uric Acid concretions with the nature of the ingesta, have been confirmed by others. Magendie has repeated these experiments on dogs, and found that by a vegetable diet, their urine could be made to contain neither Uric Acid, nor the Phosphates, that it became rather alkaline than acid.

Andral, in his Pathological Anatomy, notices the changes the blood undergoes by the use of a diet containing much azote, or nitrogen, of which nature is animal food.

Not only does the blood acquire an additional quantity of fibrine, (and hence these persons are much disposed to inflammatory diseases,) but, under the same circumstances, a superabundant secretion of Uric Acid takes place, and gives rise to the complaint called gravel. Not only does it exist in a greater quantity in the urine, but it occurs in other parts of the system. It forms around the joints, is found in masses

between the fasciculi of several muscles, in the subcutaneous cellular tissue, and even in the spongy extremities of the bones.

The best way to change this superabundant secretion, is to change the diet of the person affected, and to give him food containing as little azote as possible. He should, therefore, avoid as much as possible animal food.

As a healthy state of the digestive organs is what we should have in view, it may be found detrimental to restrain persons affected with Calculus of the Uric Acid character, from taking a due proportion of animal, as well as vegetable diet. They should, particularly, abstain from all things which manifestly disagree with them—such as heavy unfermented bread, hard boiled and fat puddings, salted meats, acescent fruits, and soups of every kind. In general, also malt liquors and wines, particularly of an acescent quality, will be injurious. Errors, therefore, in these respects, should be guarded against.

But it is not only important that those articles should be avoided which are unwholesome—regard should be had to the quantity of those which are wholesome. Errors in this respect are probably more injurious than in quality—at least they produce the same effects.

When the sediment consists of *white sand*, or the *phosphates*, we should adopt a general *acid system* of diet, as far as may be compatible with the state and condition of the alimentary canal—to abstain from soda water and all alkalis—to take weak lemonade, and an occasional glass of cider, as ordinary drink at meals; and if accustomed to wine, to prefer Champagne and Claret, to Madeira or Port, and to eat salads, and acid fruits.

Exercise is of great importance in all gravelly complaints, and flannel should be worn constantly. Sailors and other persons accustomed to constant laborious exercise in the open air, are very rarely affected with these complaints. Magendie has given a striking example of the advantages to be derived from exercise and abstinence, and the mischievous effects of luxury, in the case of a merchant in one of the Han-siatic towns.

PARTICULAR LITHONTRIPTICS.

THE consideration of particular articles will correspond with the general views taken. We will consider first the solvents of the white sand, or the Phosphates of Lime, and of Ammonia and Magnesia.

These comprise all the acids.

Carbonic Acid—First employed by Dr. Saunders, as a solvent for the human calculus in 1775, and afterwards by Dr. Percival, who speaks in the highest terms of it as a medicine, grateful to the palate, strengthening to the stomach, and salutary to the whole system—Has advantages, over lime water, and the alkalis.

Advantages of Carbonic Acid—May be taken in union with water

in the largest quantity without satiety or inconvenience—it requires no restrictions in diet, and its medicinal virtues will be undiminished in the stomach or bowels.

It has been a question whether it does enter the circulation, so as to reach the bladder in an uncombined state—Dr. Priestly decidedly of this opinion, having expelled it by means of heat from fresh made urine.

Mode of administration—Impregnating water with this gas by means of a Nooth's apparatus, or procured from the dealers in artificial mineral waters. It may be drunk freely.

Mineral Acids—comprehending the Nitric, Sulphuric, and Muriatic or Hydrochloric. They all agree in their general properties.

Nitric Acid is most apt to disagree with the stomach, producing symptoms of flatulency and indigestion, though cases may be cited of its tonic operation.

The Muriatic Acid has been most celebrated in the treatment of gravel complaints. Mr. Copland has employed it in persons who were distressed with a frequent desire to make water, voiding it with pain, and in small quantities—accompanied with obtuse pain in the region of the bladder. Upon giving it in doses of xxx. m. of the diluted acid, three times a day, a considerable discharge of sand and gravel with the urine has taken place, followed by relief of all the symptoms.

Muriatic Acid is most apt to agree with the stomach, but not so with the bowels, which are most commonly relaxed under its use. This circumstance often recommends it, for costiveness very frequently attends the state of the body which favors the formation of the white sand—hence aperient medicines often alone useful—Cases of its efficacy related.

Muriatic Acid employed in some forms of *Dyspepsia*, and its employment recommended by being a constituent of healthy gastric juice, and when mixed with mucus, has a solvent or digestive power in the case of various articles of food.

The *Sulphuric Acid* most properly considered tonic, and admits of being persevered in a longer time.

It might be supposed, from the disordered condition of the first passages, that these acids would disagree in most cases. The contrary is the case. This circumstance points out an important distinction between vegetable and mineral acids.

When the use of the acids produces much irritation, they should be intermitted, or opium employed to allay the pain.

Dose of the acids, from v. to xxx. m., three times a day, in plain or barley water.

Vegetable acids—

The Mineral Acids disagreeing with children, we have recourse to the *vegetable*. Children are equally liable with adults to an increased secretion of the Phosphates, and in whom prompt treatment is required to prevent the formation of stone.

Tartaric Acid may be used—dose v. to xx. grs., or the Bi-Tartrate of Potash—dose xx. to xl. grs. This last often operates on the bowels, which renders it beneficial.

Remedies for the Uric Acid Concretions.

They are distinguished by their *red* color, and occur when the acids are in excess.

The proper remedies will be the alkalies.

The efficacy of the alkalies and alkaline earths being sufficiently proved, the question to be considered is, the kind to be preferred, and the manner of using them.

Carbonates of Potash and Soda.—They were directed to be employed in their caustic or pure state, but in this state they are not more active than the Carbonates, and are more likely to disagree with the stomach.

Soda is preferred to Potash, as being more mild, and less likely to disagree, and Fourcroy states as his opinion, that it is more eligible for medicinal purposes than Potash, on account of its analogy with animal substances which always contain it.

Potash has dispelled symptoms which had withstood the operation of the former. They should both be retained and employed. Sir G. Blane, and Mr. Brand, state that they had obtained beneficial effects from the use of Potash, when Soda had failed to give any relief.

The explanation given for the relief afforded by Potash.

Administration of Soda.—In the form of the well known artificial beverage of Soda Water. The alkali being saturated with Carbonic Acid Gas, looses its caustic and disagreeable taste. In the quantity of a tumbler-ful, containing ʒss. to ʒi. of the Carbonated alkali, it makes a pleasant beverage, in which the offensive effects of the alkali are obviated.

Or,

℞. Carbonate of Potash or Soda, ʒ ii.

Water

℥ xxiv.

And this impregnated with fixed air by a Nouth's apparatus—of this from xii. to xxiv. ozs. may be taken daily.

Or,

The ordinary Soda Powders may be taken.

Administration of Potash.—It may be given in doses of xv. to xxx. grs. at a dose, night and morning. It sometimes produces much gastric distress, which may be diminished by uniting with it mucilage of Gum Arabic, or giving it in thin broth—Cannot be given long without producing uneasy symptoms in the stomach. To obviate this, it is given also supersaturated with Carbonic Acid Gas.

Or,

The alkalies may be freed from the water of crystallization, and made into pills. The quantity taken being from ʒss. to ʒi. daily.

Cases related exhibiting the power of these medicines to prevent, or diminish, the secretion of calculous matter.

The alkalies have also been much used in the state of Soap—but in this state they are often offensive to the stomach, or impair its powers, and lay the foundation of Dyspepsia.

Dose, ʒss. to ʒi. in pills daily.

Aqua Calcis, or Lime Water—Has been long known for its powers of lessening pain, and removing the symptoms of calculous disorders. To be effectual, it must be given in large quantity—not less than a quart or three pints daily.

It is an inconvenient and ineffective form of alkaline medicine, and not entitled to much consideration.

Magnesia.—The use of this article was suggested by Mr. Hume, upon the supposition that calculous complaints could be prevented, by introducing into the stomach such substances as are capable of preventing the formation of Uric Acid, and that this mode of treatment would have many advantages over the usual method, which consists in dissolving it after it was formed.

Efficacious in diminishing the quantity of Uric Acid in the urine, and sometimes effectual after the alkalies have failed.

Also of great value where the alkaline remedies are indicated, but in which Potash and Soda have created gastric symptoms.

Magnesia may be used as calcined or sub-carbonate—the latter generally preferable, except where flatulence exists, when the calcined should be used.

The dose xv. to xx. grs. several times a day, in any convenient vehicle. Care should be taken that an accumulation should not take place, by the occasional administration of a mild cathartic.

Magnesia, a valuable addition to the medical treatment of calculous diseases. Being less offensive to the stomach, yet capable of removing acidity from the digestive organs, will be found preferable to the other alkalies, which injure the tone of the stomach by their long continued use.

The utility of this article illustrates the pathology of these diseases, such as has been endeavored to be pointed out.

Its operation being exerted upon the stomach and alimentary canal, correcting the morbid condition of their contents, points out the connection of urinary deposits with their deranged states, and we may say their dependence upon the condition of these organs. Since, in the results which follow the administration of this article, we see, that as acidity of the first passages is corrected, the red sediment of the urine is diminished, and ultimately removed—thus proving, that there is a very intimate connection between the secretions of the stomach, and those of the kidneys.

Family *Menispermaceæ*—*Cissampelos Pareira*—Pareira Brava, Velvet Leaf, Wild Vine—Gravel Root.

Natural History—

Root woody and branching.

Stem, round, smooth.

Leaves aristate at the point, covered underneath with silky pubescence, hence called velvet leaf, but not truly downy.

Native of the West Indies and Spanish Main.

The root, the part employed, was originally introduced into medicine as a Lithontriptic. Its powers in this way were at one time highly

vaunted, and Helvetius went so far as to assert, that calculi of the size of an olive had disappeared under its use, and that the operation of Lithotomy was no longer necessary.

It is now employed almost solely in discharges from the *urino-genital mucous membrane*.

It has been used in *Gonorrhœa*, *Leucorrhœa*, and Chronic Inflammation of the *bladder*. In the latter diseases, Sir B. Brodie states that he has seen more good from this root, than from *Uva Ursi*.

It is given in the form of strong decoction, to which may be added a little of the Tincture of Hyosciamus, as follows :

Rx. Root of *C. Pareira*, ʒi.

Boiling water, ℥i.—digest—strain.

Dose, ʒi. to ʒii., three or four times day.

Of the Powder, ʒss. to ʒi.

The last of the means which have been recommended for the solution of calculi is the *injection* of various substances into the bladder. The acids and alkalies sufficiently diluted have been employed for this purpose—But it is tedious and ineligible, and has yielded to lithotritry and lithotomy.

The *gastric juice* of animals has also been employed.

The *injection* of *Castor Oil* into the bladder has great effect in relieving the sufferings occasioned by stone in the bladder, and as the pain and irritation arising from this cause are often very great, I have, says Dr. Morris, much pleasure in recommending it to the notice of those who are laboring under so severe an affliction, hoping that they may find it of inestimable advantage.

DIVISION 8.

Medicines which promote the Catamenial Secretion.

EMMENAGOGUES.

GENERAL remarks upon the Catamenia—Its nature and importance—Its suppression connected with several forms of chronic disease, and an inquiry into the condition of the uterine secretions should never be overlooked.

Medical men being aware of this fact, have applied themselves with diligence to promote this secretion—but from frequent failures of their endeavors, doubts have arisen as to the beneficial effects of medicines in these cases. The *precariousness* of this class of medicines, those who have had experience must allow. Still we are decidedly of the impression, that we are possessed of medicines which exert an action upon the secretions of the uterus, and if failure attends their administration, it proceeds from the incorrect ideas which are entertained of the nature of the Catamenia, and our inattention to the state of the system.

The fact is, the practice in these cases is often in a great degree empirical, and the want of success proceeds from neglect of those circumstances which should influence their operation. Alibert observes, that there are few diseases which depend upon such a variety of causes, or are connected with such different conditions of the general system, as obstructed catamenia. Hence, its remedies are so various, and often of such contrary characters, and hence too, the great uncertainty of our remedial measures in such cases. Many of us may have observed the great facility with which the emmenagogue operation of a particular agent has been produced, after the system has been subjected to a process of preparation, when the same substance has proved perfectly futile without it.

In some cases, the suppression of the secretion is produced by the general relaxation and debility of the system, and hence, our best remedies will be such, as will invigorate and restore it. Here exercise, tonics, the cold bath and a nourishing diet, produce the best effects.

At other times, an opposite condition of the system exists, connected with a considerable degree of rigidity of fibre, and a high degree of arterial action. In these cases, a contrary plan is to be pursued, and the best emmenagogues will be venæsection, and other depleting remedies.

In prescribing, therefore, for a suppression of the catamenia, it is of the utmost importance to attend to the general state of the system, as without it, we shall frequently be baffled in our attempts, and our medicines may often increase the disease they were designed to cure.

We shall divide the medicines of this class, into such as increase, and such as diminish, arterial action; and before commencing to speak of the individual articles, we cannot but state, that we are possessed of remedies, adapted to the varying condition of the system, provided we use judgment in their selection.

Such as increase arterial action.

STIMULATING EMMENAGOGUES.

UNDER this division, is comprehended those articles which Stimulate the arterial system, and those which give Tone to the system generally.

Family *Polygalæ*—*Polygala Seneka*—Seneka Snake Root.

The Natural History and properties of this article already described. The acrid qualities are owing to the presence of an acid called Polygalic.

The testimony in favor of its emmenagogue operation is very considerable, and to Dr. Hartshorn, of Philadelphia, are we indebted for its application to the deranged condition of the secretions of the uterus.

He employed it in twenty-three cases of Amenorrhœa. In thirteen, the menses appeared during the use of the decoction—In two, the health

improved, but the catamenia did not return. In three, no advantage whatever was derived from its use. In the remaining five cases, he was not able to ascertain the event. In the last case in which it was employed, chlorotic symptoms supervened to those of the suppression, yet by perseverance in the use of the decoction for two weeks, the menses then appeared, and the patient has since enjoyed much better health.

The testimony of Dr. Chapman can also be adduced in favor of the beneficial operation of this article, and he has related several cases illustrative of the particular state and circumstances of this deranged function, to which it is best adapted.

These cases are highly interesting, and the attention invited to them.

The particular inferences to be drawn from these cases are highly important—showing the connection between the state of intellectual derangement and the uterine organs. They open a new view in the treatment of mania in females, and conclusively prove that amenorrhœa, if not a cause of insanity, at least, is intimately concerned in its production.

They furnish an important fact, that in some cases of mania occurring in females, a cure may be effected when other means fail, by simply producing a return of the Catamenia.

To the many causes concerned in the production of Amenorrhœa, another may be enumerated. This is the production of a *membranous substance*, formed within the cavity of the uterus. It was first noticed by Morgagni, and afterwards by Denman.

It is produced by the vessels which pour out the menstrual secretion.

The appearance of this substance—It is a membranous lining of the uterus, retaining the figure of the inside of that organ—in consistence resembling firmly impacted mucous—in color similar to the decidua, being twice or three times as thick.

Its existence produces much embarrassment in the treatment of amenorrhœa. It exists in protracted and long continued cases.

The Seneka not only adapted to all the forms of amenorrhœa, but particularly to those cases where this deciduous membrane exists. It effects its expulsion by a forcible and specific impression.

The habits to which it is adapted, are those of a feeble and slender make, and of a temperament apparently cold and leuco-phlegmatic.

Forms of administration—In decoction as follows :

℞. Seneka Root, bruised, ℥i.

Water,

℥ii.—boil to ℥i.

Dose, ℥ss. to ℥i., several times a day—In larger doses when the menstrual effort is about to be made.

In the intervals it should be discontinued for a week or two.

Should it produce nausea, which it is apt to do, it may be prepared with the addition of an aromatic, such as orange peel or cinnamon.

In considering the general properties of the Seneka, little doubt exists, that it produces its good effects by promoting the various secretory discharges—the urine, with the various other secretions.

In using this article, always commence at least two weeks before the period the patient usually menstruates.

Family *Pinaceæ*—*Juniperus Sabina*, or *Savin*.

It is an evergreen tree, a native of the South of Europe.

The leaves and tops employed.

Sensible properties—

Smell, moderately strong.

Taste, hot, bitterish, acrid.

Allied to Seneka in its properties, being a warm, powerful and diffusible stimulus, increasing the secretions, and determining with peculiar force to the uterus.

From its strong determination to the uterus, it has been employed for the purpose of procuring *abortion*, and has been remarked as producing *hæmorrhage* from the uterus.

It was first employed by Dr. Home, of Edinburgh, who seems to have had much success with this article. In five cases of *amenorrhœa*, which occurred at the Royal Infirmary, at Edinburgh, four were cured with Savin, administered in doses of \mathfrak{z} i. to \mathfrak{z} ii., twice a day.

The constitutions to which it is adapted, are the weak and relaxed—it is improper in plethoric habits, before previous bleeding has been practiced.

It has been recommended by Burns in cases occurring in similar states of the constitution.

Savin is not much used internally—but in cases of *amenorrhœa* depending on, or accompanied by, a torpid condition, or deficient action of the uterine vessels, it may be given as an active uterine stimulant. In such cases, it proves an efficient remedy, and when properly administered, no ill effects will arise from its employment.

Forms of administration—

Powder, but not an eligible form. The reason why, is, that it is not readily pulverized without previously drying it, and as the active part is an essential oil very readily volatilized by heat, its activity is often impaired by this process.

Dose, \mathfrak{z} i. to \mathfrak{z} ii., three or four times a day.

Infusion prepared as follows:

\mathfrak{R} . Leaves of Savin, \mathfrak{z} i to \mathfrak{z} ii.

Boiling Water, $\mathfrak{℥}$ i.—simmer a short time, strain, add—Syrup, \mathfrak{z} ii. Dose, \mathfrak{z} i. to \mathfrak{z} ii., every two or three hours.

Besides these forms of administering Savin, the essential oil has been highly recommended, given as follows:

\mathfrak{R} . Essential Oil of Savin, vi. to x. or xii. m., taken on a lump of sugar, two or three times a day.

The oil in large doses, occasions vomiting and purging, and other symptoms of gastro-intestinal irritation—it increases the circulation, irritates the kidneys, yet more obviously the uterus—abortion follows in some cases, in others, hæmorrhage from the uterus.

In *Chronic Rheumatism*, with a languid circulation of the extreme vessels, it is spoken of in very high terms by Dr. Chapman in his Therapeutics.

External employment—

The leaves are used as an escharotic, either in powder or infusion. Equal parts of the powder, and acetate of copper, or verdigris, form a

good application for venereal warts, and other excrescences, and the infusion is used as a wash for foul ulcers, for tinea capitis, for warts, psora, &c.

The Savin ointment is found effectual to dress blistered surfaces, to keep up the discharge, as follows :

℞. Leaves of Savin, bruised,	℥ii.
Wax,	℥i.
Lard,	℥iv.

Melt, mix the leaves, strain through a linen cloth.

Same Family—*Juniperus Virginiana*, or *Red Cedar*.

The largest of the Junipers, and found in all parts of the United States, but growing most luxuriantly in Virginia. It bears a considerable resemblance to Savin, insomuch that a botanical distinction is not easily drawn. In their sensible and medicinal properties, they are nearly allied. Like Savin, it is stimulant, diuretic, and emmenagogue, and used in the diseases in which that article is recommended, as a substitute for Savin.

Used in the formation of *cerates*, for keeping up the discharge from blistered surfaces, by boiling the fresh leaves with twice their weight of lard, to which a little wax is added.

Tincture of Cantharides.—An active article, and employed in suppression of the catamenia, connected with atony of the uterus. Its emmenagogue operation not the result of general increase of action, but of particular local determinations of this article, acting upon the abdominal, and more especially, the pelvic viscera. The effects are exhibited in the production of strangury, and are not confined to the bladder, but extended to the viscera in its neighborhood—to the rectum, and to the uterus, and under its influence the uterus is often excited to pour out the menstrual secretion. The bowels, we know, are much affected by the production of strangury, and patients have been heard to complain, that the passage of the feces through the rectum excited a sensation of heat or burning, similar to that which attends the voiding of urine. If such be the strength of the impression produced by the presence of strangury upon the alimentary canal, the uterus, we may suppose, is likely to partake of an equal inflammatory action.

Several cases related in which this article was employed.

In one case, from the suppression which occurred, a very unfavorable change took place in the health of the patient—symptoms of pulmonary disease being induced, with hæmoptysis, pain in the chest, a weak quick pulse, with nocturnal chills and perspiration, the family being predisposed to Phthisis.

Several remedies were employed without much benefit.

She was then placed upon the use of the Tincture of Cantharides, in the dose of twenty-five drops, three times a day. On the second day, strangury was produced—and on the third, the menses appeared.

With the return of the catamenia, all the unfavorable symptoms disappeared, and, in due time, she recovered her health.

Other cases of the beneficial operation of this article cited.

In administering this article, regard should be had to the state of the constitution, it being adapted to cases of long continuance and debility. It should be given in doses of xx. to xxv. drops, three times a day, and carried to the extent of producing strangury, and when carried to this extent, the secretion will most frequently be excited.

Connection of several chronic forms of disease with the suppression of the Catamenia exhibited—as Mania, Nymphomania, Epilepsy, Phthisis.

We have alluded to the connection between chronic derangements and the suppression of the catamenia. The several cases we have related, have been illustrative of the dependence of mania, nymphomania, epilepsy, and phthisis, on that cause. The connection of the first diseases with the state of the menstrual secretion is admitted; but with phthisis, the relation has been overlooked, or not acknowledged. The present occasion is too favorable a one, not to state to you, that, in our opinion, amenorrhœa is often the cause of consumption. The case cited, confirms this opinion; and, at all events, it is an interesting subject of inquiry, whether the pulmonary disease is not occasioned by the suppression, and whether, in certain cases, amenorrhœa does not prove a cause of phthisis in the predisposed? Our own views are favorable to this connection, and in the treatment of cases of phthisis, as well as some other complaints, we would suggest directing the attention to the suppression, as forming the chief disease, upon the removal of which all the other symptoms will vanish, provided the secretion can be restored before the lungs have sustained such organic injuries as to render them incapable of continuing duly to perform their proper functions. Certain it is, that no occurrence is more common, than the attack of cough, pain in the side, difficulty of breathing in females, soon after the obstruction of the menses, and upon its recurrence all these symptoms going off.

The connection derives much support from the knowledge, that the approach of phthisis is generally much more insidious, and its progress more slow in women than in men, and that this difference depends upon its being rather symptomatic, than idiopathic, in females. In other cases, where it arises from some obvious occasional cause other than the catamenia, and to which females are subjected as well as males, its progress is equally rapid and violent. Impressed with this belief, we would recommend, that we keep in view the probable dependence of the pulmonary symptoms, and the other diseases mentioned upon the interrupted functions of the uterus, and direct our treatment accordingly.

But you will inquire, how are we to distinguish those cases in which phthisis is of symptomatic origin, from others? Its symptomatic origin may be ascertained, by the suppression preceding the appearance of the pulmonary affections—and when such is the case, the disease, if not dependent, has, at least, an intimate connection with the state of the uterine secretion. Under these circumstances, advantages, we can assure you, will result from re-establishing the discharge.

When phthisis has existed for some time, this secretion, with others, will be deficient, or suppressed, from the enfeebled condition of the general system. So impressed is the female mind, with the general ill ef-

fects of this state of things, that even here, you will often be urged to do something, and advisers will not be wanting, who will press upon you the necessity of so doing. Here, however, it can be of no advantage, and you will be obliged to resist and combat with much opposition. Do it in this and all other instances, with kindness and forbearance, explain your views clearly, and divested of technicalities, and, from some experience, we are satisfied that you will make your opponents your friends.

Family *Rubiaceæ*—*Rubia Tinctorum*, or *Madder*.

Native of Great Britain and Holland, where it is cultivated as an article of commerce.

The roots are the part employed.

They are long and slender, and of the thickness of a quill.

They are red throughout.

Smell, weak.

Taste, bitterish, astringent.

It is remarkable as giving color to the bones of animals, also to the urine and milk, and from the circumstance of so large a quantity entering the circulation, has been considered deobstruent.

This article has been experimented with by several individuals.

Dr. Home seems to have had much success with it. In nineteen cases of amenorrhœa in which it was employed, fourteen cases were cured. It does not exert much sensible operation.

Dr. Dewees speaks of it in terms nearly similar, and considers among its advantages, that it may be given without any reference to the pulse, or state of the system.

The late Prof. B. S. Barton, spoke of it in very high terms.

Respectable, however, as are these authorities, and this weight of evidence in its favor, it is employed by few physicians at the present day, and whatever may be its virtues, it does not possess the confidence of the profession at large, as an article adapted to restore the uterine secretions. Indeed, in our opinion, an article exhibiting so few active properties, and which, from the mildness of its impression, can be employed under almost any circumstances, and without reference to the states of the system, can be little entitled to consideration in a practical point of view. It is not with such instruments that disease is to be arrested, or deficient secretions excited. In proportion to the mischief an article is capable of doing when improperly administered, would we estimate the benefits to be derived from it in the hands of a cautious and judicious practitioner. You have heard the authorities in favor of this article, and may form your own opinions.

Family *Labiataæ*—*Rosemarinus Officinalis*—*Rosemary*.

This is a perennial plant, a native of the South of Europe, but cultivated in this country.

Sensible properties—

Smell, fragrant.

Taste, pungent and bitterish.

It is much in use as a domestic remedy for suppression of the cata-

menia, and it would appear from the testimony of several respectable authorities, that its powers are not inconsiderable.

It is given in the form of a strong infusion, or decoction, in doses of a tea-cupful for several successive nights, and then suspended. Its effects are aided by the pediluvium.

Family *Labiatae*. *Mentha Pulegium*—*Pennyroyal*.

Common to all parts of our country. It is a popular remedy, and is given in the form of a strong infusion at bed-time. In recent cases, this practice is beneficial, and is generally resorted to before professional aid is called upon. The use of the pediluvium also resorted to.

Secale Cornutum, or *Ergot*.

It has received a variety of names, as *Spermedia Clavus*, *Clavus Scalinus*, *Master Secale*; also, *Horned Rye*, *Ergot of Rye*, *Mother of Rye*.

Natural History—

The nature and formation of the *Ergot*, are subjects on which botanists are much divided in opinions.

The only opinion which seems to be well supported is, that the *Clavus* is a Parasitic Fungus, a species of *Ustilago*, like the different sorts of blight, smut, &c. Of this opinion is Decandolle.

It affects most of the Cerealia, but rye seems to be most apt to take on this morbid condition, particularly when the plant grows in low damp situations, and when it is exposed to heat, succeeding heavy rains. It is found in greater abundance on the margin of fields, than in the central parts.

Description of the *Ergot*.

It consists of grains, varying in length from a few lines to an inch—breadth half a line to four.

Form, cylindrical, tapering at the extremities.

Odor, of a large quantity, fishy, nauseous and peculiar.

Taste, when chewed for a considerable time, it produces a sense of fulness in the throat, disagreeable and slightly acid.

When taken into the stomach in moderately large doses it occasions nausea; a scruple or a drachm has occasioned vomiting, but without acting on the bowels.

The color, purplish brown or black.

Chemical analysis—

A fixed oil.

A peculiar principle called *Ergotin*.

Phosphoric acid combined with lime.

Gum, starch, albumen.

The properties of the *Ergot*—

Its most prominent effect is, its direct action upon the uterus, producing and increasing contractions, when there is a predisposition to action in that organ, and restoring the catamenial secretion when obstructed. It must, therefore, be ranked in the M. M. as a *Partus accelerator*, and as an *Emmenagogue*.

Medical History.

This article was known to Holland and France in the middle of the last century. From the indiscriminate manner in which it was employed, injurious results followed, and we find it prohibited in France by a legislative decree. In 1807, its use was revived by Dr. Stearns, of New-York, who was led to make trial of it, from the powerful effects it produced in the hands of some ignorant Scotch women. My information, he says, was such, as to impress upon my mind the necessity of extreme caution in my first experiments. The continued influence of this impression upon my subsequent practice, has been a source of much consoling reflection.

There can be no doubt at present, that this medicine has the power of exerting a specific action upon the uterus—that this action consists in augmenting the contractile power of that organ during parturition, and in lingering and protracted cases, inducing forcible contractions, and expediting delivery. The concurrent opinion of most physicians is decidedly in favor of these effects.

These effects are not more extraordinary than the almost instantaneous manner in which they are produced. In twenty cases, says Dr. Prescott, I carefully noticed the precise time it required to produce its customary operation. In two of them, the increased strength of the pains, and the continued action, commenced in seven minutes from the time the decoction was taken. In one case, it was eight minutes, in seven, it was ten, in three, eleven, and in other three cases, it was fifteen minutes.

In the employment of an agent so powerful in its operation, certain rules and directions become necessary to prevent any bad consequences which might arise from its use, and which are more particularly proper, as the action when excited is so little under control.

The rules necessary in its administration, are—

RULE I. That it should never be administered when nature is competent to a safe delivery.

RULE II. It should never be given until the regular pains have ceased, or are ineffectual, and there is danger to be apprehended from delay.

RULE III. It should never be administered until the rigidity of the os uteri has been overcome, and a perfect relaxation induced. When labor has been protracted from the rigidity of the os uteri, or of the soft parts, these obstacles should be overcome by venæsection—after which the Ergot may be usefully employed, and its operation will be found mild and efficacious.

RULE IV. It should never be administered in the incipient stages of labor, nor until the os uteri is dilated to the size of a dollar.

This rule is of the utmost importance, the success of the article being very much influenced by the time when it is employed. When given in the early stages of labor, and before the os uteri is sufficiently dilated and relaxed, it often fails of success. The pains induced under these circumstances, often terminate before the labor is accomplished, and are of no advantage.

RULE V. It should never be administered in any case of Preternatural Presentation, that will require the fœtus to be turned. The neces-

sity of this caution will be obvious, when it is considered that the violent and forcible contractions induced, will add much to the difficulty and hazard of the operation.

With these precautions in the use of the Ergot, it may be safely and effectually used, and the relief afforded will, from the united testimony of those who have written on the subject, be gratifying in the highest degree. Without a regard to these rules, the most mischievous consequences will result, and an article capable of serving many valuable purposes, will be neglected and abandoned.

Having premised the rules which are to be observed in the administration of the Ergot, I shall proceed to consider those cases in which it is necessary to have recourse to it.

1. The Ergot is indicated in those cases, where the expulsion of the child is delayed from the action of the uterus being weak and ineffectual—where it has descended into the pelvis, and the soft parts are prepared for its passage. Any delay to its expulsion when in this situation, would be attended with danger to the mother from pressure on the soft parts, or from the exhaustion of strength and vital energy, which might ensue from hæmorrhage, or other alarming symptoms. In these cases, the action of the Ergot, by renewing the uterine contractions to a considerable degree, speedily effects delivery.

2. When the pains are transferred from the uterus to other parts of the body, or to the whole muscular system, as in puerperal convulsions. In these cases, Dr. Stearns observes, that after copious blood-letting, the Ergot concentrates all these misplaced labor pains upon the uterus, which it soon restores to its appropriate action, and the convulsions cease.

The beneficial effects of this practice is also confirmed by Dr. Waterhouse, who in a case of violent puerperal convulsions, accompanied with dilation of the os uteri, succeeded by employing the Ergot, in restoring the pains to the proper organ, in a manner almost instantaneous, he says, and truly astonishing.

3. When in any of the stages of pregnancy abortion becomes inevitable from hæmorrhage. Cases complicated with hæmorrhage, call forth all the decision and energy of the medical character. Their management is connected with much hazard to the mother, and to the physician, a scene of trial and difficulty. Under these circumstances, to know that we possess a remedy, the action of which tends to restrain the hæmorrhage, must be attended with consolatory reflections.

The indication to be fulfilled, is to excite the uterus to contract, and expel its burthen, as by this means only the hæmorrhage can be arrested. The Ergot, from its action upon the uterine fibres, presents itself as a remedy suited to these purposes. It must be given to the extent of exciting contractions, and when these are produced, the flooding will commonly cease.

4. The Ergot is indicated in cases of labor, complicated with uterine hæmorrhage. The same remarks as in the preceding, are applicable here. The hæmorrhage must be stopped by plugging the vagina, the use of cold applications, &c., until the os uteri is dilated, when the Ergot may be tried with safety and effect.

5. Where the placenta is retained from the want of action in the uterus—We have seen several instances of the beneficial application of this article in such cases, and from all that we know of its operation, the Ergot will be well adapted to effect its expulsion.

6. The Ergot will be beneficial in cases where hæmorrhage occurs after delivery. It occasionally happens that the uterus, from the want of tone, does not contract after the delivery of the child and secundines, in consequence of which, flooding is very apt to ensue. This is what has been called relaxation of the uterus, and is a state of extreme danger. It may be known by the abdomen being large and flaccid, and the uterine tumor not being perceptible above the pelvis. In these cases, the Ergot will be found very efficacious, and in a short time excites contractions of the uterus.

I cannot conclude this summary of the beneficial effects of the Ergot, without stating to you the opinion of Dr. Dewees on this subject. It would appear, he says, from all I have been able to collect, and from all I have observed, that it rarely fails, or disappoints, when properly prosecuted.

Objections to its employment answered.

Manner of exhibiting the Ergot in Parturition. It does not exert as beneficial effects when administered in powder, as in decoction. In this latter form it is prepared, by infusing 3ss. of the bruised Ergot in $\mathfrak{z}\text{iv}$. of hot water. Of this, one-third is taken as a dose. If the pains are not sufficiently severe in twenty minutes, half the remainder is given, and the last dose if necessary; but this is rarely the case. While this quantity produces its most favorable effects upon the uterus, it does not affect the stomach with nausea, or vomiting, which sometimes interrupts its successful operation.

Besides the cases already mentioned, in which Ergot may be successfully resorted to, it has been employed in profuse discharges of the Lochia, in Menorrhagia, by several persons, and by myself, with very gratifying results.

Preparations of Ergot.

Ergotine—Preparation—It has been recommended as a valuable Therapeutical agent, without being possessed of poisonous properties.

It has been particularly recommended in hæmorrhages dependent upon carcinoma of the uterus.

It is given in doses of ii. grs., every two hours, until relief is obtained.

Used also as an external application to restrain hæmorrhages from wounds.

Manner of employing it—Dissolve Ergotine in ten or twelve times its weight of water—A compress of lint moistened, is brought in contact with the wound, and while holding it, let fall, drop by drop upon the lint, the solution of Ergotine.

Oil of Ergot—Preparation.

It is given in the same cases as Ergot.

The dose is from x. to xx. m., in warm tea, or weak spirit and water. It has the advantage of being kept for a length of time without its activity being diminished.

Tincture of Ergot—A useful and convenient mode of administration.

Ergot has been recommended in hæmorrhage from other organs. The power possessed by Ergot, of exciting uterine contractions, readily explains its efficacy in hæmorrhages from the uterus. It cannot, therefore, very easily be understood how it restrains hæmorrhages from other organs. A number of cases have been published of its efficacy in restraining discharges of blood from the gums, thorax, abdomen, bladder—but further evidence is required, before we can pronounce upon its anti-hæmorrhagic powers.

The Emmenagogue operation of Ergot.

On this subject there exists considerable contrariety of opinion, some maintaining such a power, others denying it—Our opinion favorable to the beneficial operation of the Ergot in this particular. This opinion strengthened by the reports of cases in the various Journals of the day.

Dr. Randal, of Boston, in the *New-England Journal*.

Dr. Church, in the Nos. of the *American Journal of Medical Sciences*.
The authority of Dr. Waterhouse.

It is given in powder, in doses of xv. or xx. grs., three times a day, or in decoction.

Morbid Effects.

From the experiments of Dr. Robert, of Berlin, it appears to be injurious, and even fatal to all animals, which are fed for a sufficient length of time upon a moderate proportion of it, unless they escape its action by early vomiting. That dogs and cats, in consequence of discharging it by vomiting, suffer only slight symptoms of irritant poisoning—but that swine, geese, ducks, fowls, quails and sparrows, are sooner or later killed by it.

The symptoms it causes in birds and beasts, are giddiness, dilated pupils and palsy, diarrhœa, suppurating tumors, scattered gangrene throughout the body, dropping off of the toes, &c.

In the human subject it produces very distressing symptoms, and the manner in which its usual distressing effects are produced, is, when it has been mixed with the grain in meal, and been taken as food for a continuance of time in bread.

Two distinct set of symptoms have been described.

The one a nervous disease called by the French, Convulsive Ergotism.

The other being a depraved state of the constitution, which ends in that remarkable disorder called dry Gangrene; also, Gangrenous Ergotism, Creeping Sickness, &c., from its being preceded by general uneasiness, weakness, and a feeling of insects creeping over the skin, followed by numbness of the feet and toes, which, in a short time, become shrivelled, dry, and drop off—and the two affections are not apt to be blended in the same individual.

Guaiac, in the form of volatile Tincture, has been recommended in high terms in *Amenorrhœa* and *Dysmenorrhœa*, by Dr. Dewees. His success with it has been so considerable, that he has pronounced it a

specific in these cases, and employs it almost to the exclusion of every thing else.

The formula is as follows :

R. Powdered Guaiac,	℥ viii.
Powdered Pimento,	℥ ii.
Carbonate of Soda, or Potash,	℥ iii.
Alcohol diluted,	℔ ii.

Mix and digest for two or three days.

The dose is ℥ i. three times a day, in a wine-glassful of milk.

The Vol. Spirits of Ammonia is added, in the proportion of ℥ i. to ℥ iv. of the Tincture. Should it purge, a few drops of Laudanum may be given.

Stimulating Injections.

Under stimulating Emmenagogues, may be mentioned the employment of *Aqua Ammonia*, in the form of injection into the vagina.

This practice was first proposed by an Italian, and he relates cases in which the treatment succeeded in a few days in producing the discharge. The proportion used was x. or xii. drops of ammonia in two table-spoonsful of warm milk, often repeated in the course of the day. It generally produced in the vagina a sensation more or less painful, according to the strength of the mixture, or the sensibility of the part, but in no case was any thing dangerous, or troublesome produced.

ELECTRICITY.

A FEW remarks may be made upon Electricity, as an agent of considerable importance in removing uterine obstructions.

From the well known influence of this agent in the production of the physical and chemical phenomena of the external world, as well as on the animal economy, we would expect that it should be applied to valuable purposes as a remedial agent.

The effect of the Electric fluid upon the animal system, seems to be that of a general stimulant. It quickens the circulation, increases the insensible perspiration, and promotes the glandular secretions. Many instances are to be found in the history of our science, in which it has been employed on various occasions with considerable advantage and success.

Of its utility in *Amenorrhœa*, there is not wanting the weight of high authority, and the experience of many in this city who have employed and recommended it.

The authority of Drs. Cullen, Cavallo, and Golding Bird, on Electricity and Galvanism, in their Physiological and Therapeutical relations, adduced in support of the efficacy of this agent.

The success which has followed its use, entitles it to be considered a valuable and efficacious remedy in this disease.

Besides its effects upon the general system already detailed, it has this great advantage, that it can be applied to any particular organ.

Not reason only, and the opinions of individuals, shall we urge in support of the utility of this agent—we shall furnish the results of the experience of the late Dr. Sheeut, of this city.

Of forty-nine cases which were submitted to electrical treatment, thirty-four of them were effectually cured, and the remaining fifteen relieved from their most distressing symptoms. More might have been cured, for he adds, that it is too common with patients when they find themselves relieved, to trust to nature for the rest.

In bringing before you this statement, I should observe, that such is the dread entertained by females of electrical sparks, together with the trouble of being carried to a machine, that it is seldom resorted to until medical treatment has been practiced to some extent, so that I may say the usual remedies had been unsuccessfully employed.

In confirmation of the utility of Electricity, two cases introduced which fell under our notice, in which this remedy was employed with the utmost advantage.

The case of a lady, of this city, cited, who for six years labored under a suppression of the menstrual secretion, in whom, to the ordinary distressing symptoms, was added such strong convulsive paroxysms, as to render the approach of her monthly periods the occasion of great dread, and painful forebodings to her friends. From her situation in life, the first physicians were employed, and every expedient which medical skill suggested, was united with the utmost care and assiduity in its execution. They were all unavailing. The paroxysms and the morbid derangements still continued, and the patient's constitution became at every period, more and more enfeebled. Her existence seemed nearly to have been extended to its utmost limit, and death, I may say, had marked her for his own. In this situation electricity was proposed, and from the extreme feebleness which existed, apprehensions were entertained that the necessary shocks would be too severe. They were submitted to, however, and the first application was found useful in abating the severity of the symptoms. A few repetitions seemed to unlock the secretions which had so long been retained. With the discharge every unpleasant symptom disappeared, and to this day the lady enjoys a large share of health. So complete a triumph as was thus exhibited, deserves not only to be recorded, but to be remembered. Its application being connected with so many minute directions, which can best be exemplified upon the machine, that I must refer you to the Professor of Chemistry.

Another case of spasmodic disease, closely resembling Catalepsy, fell under my notice, in which the benefit conferred by electricity was conspicuously manifested.

(b.) *Remedies which increase arterial action by giving tone to the system.*

Amenorrhœa is often connected with a debilitated state of the system requiring Tonics.

The preparations of Iron have long been considered among the most useful and valuable remedies in these cases; and a number of facts

could be cited, of their utility in diseases which proceed from atony of the general system, in cases of feeble re-action, and of languid and imperfect operations of the functions generally. They have, therefore, been employed in a variety of cases, which will be more particularly considered at a future period.

In the state of the system which is at present under consideration, few articles can be more beneficial. Not only are they of use by the impression which is made upon the animal fibre, but by being received into the circulating system, the energies of the heart are greatly increased, the pulse is rendered more full and strong, greater energy is afforded to the animal functions, secretions are renewed, and health is restored. With these changes the process of assimilation is better performed, a more healthy chyle elaborated, nutrition advances, and hence, to an increase of vascular action, is added an increase in the bulk of the body.

Of the Preparations which have been most esteemed.

1st. Protoxyd, Rust, or Carbonate of Iron.

Preparation—By adding a solution of an alkaline Carbonate to a solution of the Sulphate of Iron, the atmospheric air being excluded, the Carbonate of the Protoxyd of Iron is precipitated.

This is one of the most valuable preparations of Iron, on account of the facility with which it dissolves in the fluids of the stomach, and becomes absorbed. Its local effects are very mild.

The dose is from x. to xv. grs.

It is seldom given alone, but combined with bitters and aromatics, with a view to improve their action, or lessen the distaste which arises from its uncombined administration.

The following formula will be found a useful mode of exhibiting this article :

℞. Protoxyd of Iron.

Powdered Ginger, each 3 ii.

Powdered Cinchona, 3 ss. to 3 i.

Mix and divide into viii. or x. powders, one of which is to be taken every two or three hours, or the mass may be made into an electuary with syrup.

Or,

A better and more agreeable formula, is the Chalybeate Wine, prepared as follows :

℞. Protoxyd of Iron.

Orange Peel.

Gentian Root, each 3 ss.

Port Wine, ℥ ii.

These ingredients are to be bruised and then put into the wine, exposed to a moderate heat, either in the rays of the sun, or near a fire—shake occasionally—decant for use. Dose, half to two-thirds of a wine-glass, with a little water.

This preparation may be recommended as pleasant, and highly beneficial in its operation.

In the constitutions submitted to our care under this condition of the system, much attention is required in adapting the medicine given to the excitability, and so to compound your medicines, that exciting but

little disgust, they may be persisted in until the object intended is accomplished.

Sulphate of Iron, another preparation employed in the same cases. It entered into the composition of Griffith's Myrrh Mixture, which was at one time much used, but which is little employed at the present.

The following formula may be substituted for it.

℞. Sulphate of Iron,	℥i.
Gum Myrrh,	℥i.
Sub-Carbonate of Potash,	℥i.
Refined Sugar,	℥i.

These are to be well rubbed together, and during the trituration, add
 Rose Water, ℥ viiss.
 Spirit of Nutmeg, ℥ ss.

Dose, ℥ ss. to ℥ i., two or three times a day.

This preparation will be found useful in Anemia, Chlorosis, Atonic Amenorrhœa, and hysterical affections.

It is particularly useful from its ready solubility, by which it is readily digested and absorbed.

The Sulphate of Iron, administered in the form of pills, as follows:

℞. Sulphate of Iron,	℥ii.
Ext. of Gentian or Bark,	℥i.

Mix and divide into xx. pills—a pill taken two or three times a day.

Or,

Combined with Myrrh to increase its Emmenagogue operation.

Or,

United to an infusion of Quassia or Colombo.

These infusions preferred, as in consequence of their containing little or none of the astringent principle, their color is not changed by the addition of the salts of iron.

Iodide of Iron.

It possesses in a useful form, the properties of both the ferruginous salts and of Iodine, and it is indicated in cases where both are required for administration.

As a Tonic, it is useful in cases of debility, accompanied with softness of the solids and paleness of the skin—In scrofulous affections of the glandular system, in which both the use of Iron and Iodine are indicated.

In *Tubes Mesenterica*, *Chlorosis*, *Atonic Amenorrhœa*, it has been found serviceable by Dr. Thompson, and his testimony of its good effects is supported by that of others. Its operation must be promoted by exercise and invigorating diet—Vide Tonics.

It is given in substance and in solution.

In substance, in doses of iii. to v. grs., two or three times a day.

In solution—

℞. Iodide of Iron,	grs. xxv.
Distilled Water, or	
Syrup,	℥ i.—m.

A tea-spoonful contains grs. iii., and is a dose.

Tincture Ferri Sesqui-chloridi, or *Muriated Tincture of Iron*.

One of the most powerful preparations of Iron.

It is employed in any of the cases in which the other ferruginous compounds are administered. Dose as the following :

Per-Nitrate of Iron—Preparation.

It resembles the solution of the Muriate of Iron in its medicinal properties.

Dose, x. drops several times a day, increased to xx. and xxv. drops, largely diluted with water.

Lactate of Iron.

Citrate of Iron.

Tartrate of Iron and Ammonia, with other preparations which will be considered under the Class of Tonics.

A variety of other means are usually resorted to, to restore the tone of the system, but they can scarcely be considered Emmenagogue.

It may be proper to mention them here. They are exercise in the open air, a very powerful means of strengthening the system, and with particularly good effects, if the lower limbs can be much employed—as in walking, riding on horseback, dancing, &c.

The cold bath.

Frictions to the lower extremities.

Lastly, a cordial and strengthening diet, which, if properly directed, and caution be observed with respect to quantity, we would rank among the best of Tonics.

EMMENAGOGUES WHICH DIMINISH ACTION.

THE suppression of this secretion is often found occurring in full plethoric habits, with much arterial excitement, flushed face, inflamed eyes, and pains in various parts of the body. Depleting remedies under these circumstances are the best Emmenagogues, and of these *Venæsection* holds the first rank. The uterus, in habits of this description, may be considered as partaking of the same plethoric and inflammatory state, and its action to be carried to such a degree as to transcend the point of secretion. Here then venæsection becomes an excellent remedy, and many instances might be adduced of its success in restoring the discharge.

To this may be added other means of depletion.

Cathartics may be considered as next in value. For the purposes of depletion, any of them may be employed, but of those which have been most celebrated, a few may be selected.

Family *Ranunculaceæ*—*Helleborus Niger*—*Black Hellebore*.

Christmas rose, flowering in winter.

Grows wild in the mountainous parts of Switzerland and Austria.

Root, consists of the root-stock, and the fibres which arise from it.

Sensible properties—

Taste of the root acrid and biting, fibres more acrimonious than the root from which they issue.

Odor, feeble, compared to Seneka.

The properties of this root are those of a drastic irritating cathartic, having an action principally exerted upon the pelvic viscera, and thereby often proving Emmenagogue.

It has been long known in the M. M., having been used by Melampus in the treatment of *madness* fourteen hundred years before the Christian æra.

It was employed in those cases where there was much torpor of the system, and in Phlegmatic habits requiring strong impressions—Hence it was employed in the treatment of *Melancholia*, and in *Mania* depending upon black bile in the system.

In cases where the Pelvic circulation was languid.

Hence, as an Emmenagogue, it was highly recommended by Dr. Mead, and is still much valued by some practitioners.

Administered in Powder—dose, iii. to viii. grains.

In Tincture, 3 ss. to 3 i.

Notwithstanding what has been said of this medicine, it is a dangerous and drastic remedy. It has been tried in the affections spoken of, but in these less violent, and more manageable, and certain remedies of the same class are equally effective.

Aloes and its *Preparations*, have been much used in these cases.

It is seldom given alone, but is combined with various articles, or administered in the form of Tincture.

Of these preparations, the most celebrated is the *Elixir Proprietatis*, or *Compound Tincture of Aloes*.

It is prepared in the following manner :

℞. Powdered S. Aloes.

Fine Saffron, each, ʒ iii.

Tincture of Myrrh, ℥ ii.—digest these a due time,

press off the liquor, filter for use.

The dose is 3 ss.

This is a warm, active and stimulating cathartic, and is much used in Catamenial obstructions.

In the state of constitution under consideration, we have commonly been more successful, by administering x. or xv. grs. of Calomel at bedtime, and in the morning, following up its operation with a dose of the Tincture.

The practice is to be repeated two or three nights, and will often be found beneficial.

Preparations of Mercury.

They are sometimes useful, not only for their evacuant operation, but to renew secretions. For the latter purpose, they should be employed to the extent of producing a slight salivation, which is to be kept up for two or three weeks—and this aided by the use of blisters, placed high up the inside of the thighs, has been found efficacious after other means

have failed, and in very obstinate cases should, doubtless, be resorted to. By this mode of treatment, the deranged actions of the system are counteracted and completely broken up by the operation of the Mercury, while a degree of action is communicated to the parts more immediately diseased, by the local impression of the blisters.

DIVISION 9.

SIALAGOGUES.

Definition—from the Greek, Sialen, saliva, and ago, I expel.

The term Sialogogue is objectionable, inasmuch as it is applied to an effect which in most cases is incidental, and which, in many instances, is not necessary to the cure of diseases. We shall retain it, as it has been done by preceding writers on the M. M., keeping in mind that the term does not embrace the principal operation to be considered in the medicines arranged under this head.

Of two kinds—*Masticatories*, or External Sialogues.

They operate by stimulating the excretories of the saliva and mucous glands, and cause a more copious secretion of saliva.

It seems to be a salutary provision of nature, that when any acrid matter is applied to the sensible part of the tongue, and the internal surface of the mouth, a quantity of saliva and mucous should be poured out to wash it off, or to defend those parts from its irritating effects. The operation continued, a considerable discharge from the vessels supplying the head may be produced. Hence it is, that these masticatories may become local evacuants, and useful in rheumatic congestions, and inflammatory dispositions in any part, supplied by branches of the carotid artery. They will also be found, by their stimulating qualities, to be of considerable advantage in paralytic affections of the tongue.

The substances resorted to for this purpose, are the Angelica, Horse Radish, Tooth-ache Bush, Polygala Seneka. Yet as they are not much employed for practical purposes, they need not be more particularly considered.

Of the *Internal Sialogues*, Mercury is the only one capable of exciting a flow of saliva, and the only one to be depended upon.

Mercury.

Natural History—It appears like melted lead—is capable of being solidified by cold, and easily volatilized by heat.

Synonyms—Quicksilver, or living silver.

Hydrargyrum, or watery silver.

Mercury, after the winged messenger of the Gods, on account of its volatility.

It is found sometimes pure, and called Virgin Mercury, most commonly combined with sulphur, or the metals, from which it is separated by chemical processes.

It is brought from mines in Spain, Hungary, East Indies, and other places.

Medical History—It urged its way into practice with much difficulty, being considered by the ancient Greeks as highly poisonous.

Thus Dioscorides ascribed pernicious effects to it as a medicine, and the elder Pliny declared it had the quality of poisoning all things.

The writings of Galen circulating among the Arabians, the correctness of these opinions became questioned, and we find their most distinguished physicians introducing it into medicine as an external application in the cure of cutaneous diseases.

From its external employment, it began to be ventured upon internally, and it became common to give it in obstructions of the alimentary canal—its weight forcing a passage, and in difficult labors.

The researches after the philosopher's stone contributed very much to enlarge our knowledge of the chemical history of this article, this being one of the substances to which their attention was principally directed, and in the zeal for discovery, its properties became better known.

The practice of the Arabians was soon followed by some of the physicians of Europe, towards the end of the thirteenth century, but was not established, or looked upon in general to be safe, until about the sixteenth century, when the venereal disease making its appearance in Europe, was found to yield to mercurial preparations alone.

To Paracelsus, that extraordinary adventurer in Chemistry and Physics, are we indebted for the early introduction of this article into medicine. He was the first to employ it for the cure of the venereal disease, which made its appearance in the early part of the sixteenth century.

In the treatment of this severe, and newly distinguished disease, he acquired a degree of success which none of his contemporaries could attain, who did not resort to its use—and he must be allowed to have conferred on mankind a substantial benefit by the introduction of the use of mercury into medicine. Being found so efficacious in the venereal disease, its use began to be ventured on in other complaints. To Dr. Chisolm in the West Indies, and the physicians of this country, we owe its extensive use in malignant fevers, and the diseases of warm climates.

Chemical History—In its crude state, it produces no perceptible effect on the body, and is without any sensible acrimony, taste, or smell—yet it may be rendered active by changes in its chemical state, or additions to its substance. When rendered thus active, it seems to be a stimulus to every sensible and moving fibre of the body to which it is applied. The degree of its stimulant impression is modified in a very remarkable manner, by the different preparations of it which have been proposed and employed.

In consequence of the changes which it undergoes by its numerous preparations, it is not only a powerful stimulant, but it enters the circulation, quickens the vascular action, excites powerfully the whole glandular system, and increases all the secretions and excretions. Hence, it happens, that its various preparations produce different effects, operating sometimes as stimulants to the general system, or as cathartics, emmen-

agogues, errhines, &c., and hence it becomes useful in a great variety of diseases, such as febrile affections, cachectic diseases, glandular obstructions, and cutaneous eruptions.

The value of these preparations may be inferred from this circumstance, that during a period of three hundred years, experience has fully sanctioned their use; and in confirmation, I may adduce the remark of Mr. Pearson, who justly observes, that no one medicine besides, (opium excepted,) derived from the animal, vegetable, or mineral kingdom, has maintained its credit with men actually engaged in extensive practice, during a tenth part of that period. Although it is a medicine capable of being abused, to the disappointment of the patient, and the injury of the constitution, yet under the direction of cautious and judicious practitioners, it may be ranked as one of the most useful articles of the *Materia Medica*.

The chemical changes which have been proposed, in order to render mercury active and useful, may be reduced to oxidation in different degrees, and union with acids, constituting mercurial salts.

The Preparations of Mercury may be considered under the three following heads:

1. As they are formed by Trituration.
2. As they are combined with Sulphur and Iodine.
3. As they are combined with acids of different kinds, forming salts.

The Preparations by Trituration, are formed by rubbing Mercury with Saccharine, Mucilaginous, or other substances, until the globules of mercury are completely divided. By this operation, the mercury being exposed to the atmosphere, becomes oxydized. They are more mild than the preparations formed by a combination with the acids, but to be effectual, the trituration should be complete, otherwise the practitioner will experience uncertainty in their use.

The first of the Preparations under this head, is the *Pilulæ Hydrargyri*, or *Blue Pill*.

Preparation—This is one of the best preparations of mercury, and may, in general, supersede most of the forms of this medicine. In its preparation, the mercury is minutely divided, and converted into the black oxide. (Present a specimen of the blue mass manufactured by steam power, being in a more minute and permanent division—also of the protoxide of mercury as it exists in the blue mass.)

Blue mass can be prepared more readily by adding this oxyd to the conserve of Roses, in the proportion of an ounce to the pound.

Or given alone in the dose of $\frac{1}{4}$ gr. at bed-time, in a little syrup.

The blue pill is much employed to produce a mercurial impression on the system, sometimes to act as a laxative. For these purposes it is much less active than calomel, but possesses this advantage, that it may be administered to irritable subjects, who are purged, or otherwise incommoded by the Proto-Chloride of Mercury. Employed in the treatment of various affections of the stomach, and chylopoietic viscera.

Dose, iv. to vj. grs.

One grain of mercury is contained in four grains of the mass, according to the Edinburgh formula.

Do. in iij. of the London.

Do. in ij. of the Dublin. The first is preferred.

Adulterated by the substitution of earthy clay for the mercury, and a preparation examined, contained but little more than a fifth of the proper proportion of mercury.

Mistura Hydrargyri Mucilaginoso.

This is the second preparation formed by trituration, in which the mercury, reduced to the state of a dark grey oxide, is combined with gum or vegetable mucilage. Called also Plenck's solution, from being introduced into use by Professor Plenck. This is an inconvenient mode of exhibition, as the mercury does not remain sufficiently suspended—But rarely employed.

Used in the formation of gargles, collyria, injections, &c. Our experience not considerable with it, preferring other articles.

Unguentum Hydrargyri, or Mercurial Ointment.

Two preparations in the shops, the strong and the mild.

Preparation—Two drachms of the former, contain one drachm of mercury; and three drachms of the latter, contain one drachm of mercury.

The former used chiefly for mercurial frictions—The latter as a dressing for ulcers and some cutaneous affections.

Mercurial Ointment rarely found in the shops of a proper quality. This depends upon the difficulty which is found to exist in minutely dividing the globules of mercury by the mere friction of tallow and lard.

To facilitate the operation, various expedients have been proposed. These enumerated.

The addition of a little of the old ointment to the quicksilver, facilitates the operation. State in which mercury exists in the ointment—mechanical division—a protoxyd, and as a sebate of mercury.

Medical application—Mercurial Ointment is the form of introducing mercury into the system by friction. It is the least exceptionable form, because the skin is not near so essential to life as the stomach, and is therefore capable, in itself, of bearing much more than the stomach. It is adapted to patients whose bowels are irritable, and will not bear the internal use of mercurials, or who are purged, or otherwise incommoded by the use of mercurials, or when it is desirable to make a speedy impression on the system.

Employed in local affections, in tumors, buboes, &c.

Before having recourse to this mode of employing mercury, the patient should be prepared.

He should take a cathartic.

Use the warm bath.

Skin to be cleansed with soap and water.

The patient should rub in at night from ʒii. to ʒiii. of ointment, where the cuticle is thin, and the absorbents numerous.

Before each new application, the grease and blackness should be washed off with soap and water—The friction should be performed by the patient. If an assistant is required, he should protect his hand with a glove.

The frictions to be continued until the gums begin to swell, or the breath to smell disagreeable, when they should be left off.

When an immediate effect is desired, it should be rubbed into the axilla—mercurial socks should be worn. This practice only to be resorted to in desperate cases—in Hydrocephalus, Tetanus, &c.

Mercurial ointment has been employed in *Erysipelas*.

In conjunction with depleting remedies, it relieves the burning pain, heat, and Inflammation.

Mercurial ointment is frequently prepared with a smaller proportion of mercury than that directed to be used in the Pharmacopœias—and in order to communicate to it the requisite shade of color, Sesqui-Sulphuret of Antimony, Indigo, or Prussian blue, are added.

Mercurial ointment is rarely, or never, administered internally in this country, but it is used in Europe, and often with considerable effect. It is said thus administered to be efficacious in exciting speedy salivation.

It is given in doses of from ii. to v. grs., in pills, to which liquorice powder is added.

How does mercury operate when applied to the surface?

That it is absorbed by the skin is stated by some, and that it is inhaled by the lungs, is contended for by others. We have already explained our views fully on this subject, and will refer to what was said at the commencement of the course.

We have sufficient evidence that it is taken into the circulation, and that it produces its good effects, by virtue of being taken into the system.

That certain medicines are absorbed and carried into the circulation, we have maintained on a former occasion. That mercurial medicines may likewise, we know, from this practical fact, that infants laboring under syphilitic affections, are cured by administering mercurial preparations to their nurses. Thus it would appear to have been absorbed, carried into the blood-vessels, and secreted with the milk by the arteries of the breast.

Some facts adduced, which prove that when mercury is combined with the atmosphere in the state of vapor, produced by the partial evaporation of the metal, its effects are very active.

Hydrargyrum cum Creta.

Prepared by triturating mercury and prepared chalk until the globules disappear.

This is a mild preparation, and well adapted to children, particularly to the various disordered conditions of the digestive organs occurring in them.

In these cases, the dejections exhibit considerable derangement in the secretions, being either of a greenish color, or clay colored, or white.

Consistence, thin and watery, or curdled, or slimy.

Odor, highly offensive, or earthy.

In the above condition of the secretions, this preparation will be found valuable, aiding its operation by attention to diet.

Also valuable in Syphilis of infants.

It is given in small doses frequently repeated, and often the beneficial effects which result are more permanent, than when larger doses are employed—at the same time, they can be continued longer without apprehensions of salivation.

Three grains of the powder contain one grain of mercury. Half this quantity may be given at a dose, and to improve its antacid operation, combined with an additional portion of prepared chalk.

Combination of Mercury with Sulphur.

Black Sulphuret of Mercury—Proto Sulphuret of Mercury, or Æthiops Mineral.

Preparation—Employed as an alterative in the glandular diseases of children, in scrofulous swellings, and in cutaneous diseases.

Lately recommended by Biequerel in the treatment of Typhoid Fever—vide New-York Journal of Medicine, No. 49. It is a preparation but rarely employed, being the least active of the preparations of Mercury.

Dose, v. to xxx. grs., two or three times a day.

Bi-Sulphuret of Mercury—*Red Sulphuret of Mercury*—Factitious Cinnabar.

Preparation—Used at one time in cutaneous and gouty affections, and with musk formed the famous Chinese remedy in Hydrophobia.

Not much used internally, but as a fumigating agent in venereal ulcerations of the throat and nose.

Ulcers and excrescences about the anus and pudenda, are particularly benefited in this manner.

Mode of applying the fumes—By placing a piece of hot iron at the bottom of a night stool-pan, sprinkling upon it a small portion of the Red Sulphuret, and when volatilized, seating the patient upon the pan.

Ulcers in the fauces treated also with the fumes of the Red Sulphuret—Contractions of the joints from Rheumatism.

A few remarks may be made upon the subject of Fumigations.

The practice is among the most ancient methods of affecting the system with Mercury, and in some respects it is a very eligible mode.

The advantages attending its use, are—

That we are enabled to affect the constitution when other methods fail.

That these effects can be produced in a much shorter time than any other method requires.

It can be employed when venereal ulcers are making great ravages.

When the system refuses to take on mercurial action.

And when the bowels will not bear the internal use of mercury.

Mr. Abernethy approves of this practice, and recommends it as a very powerful and innocent means of mercurializing the system.

The manner of applying the fumes is in a bath prepared as the Sulphur bath. The patient is seated within, and breathes an air foreign to the bath, the mercury being volatilized outside.

The powder preferred by Mr. Abernethy, is the Protoxyd of Mercury, obtained by the decomposition of the Proto-Chloride of Mercury.

An extension of this practice has recently been proposed, to the treatment of Febrile diseases, as Yellow Fever, Bilious and Malignant Fevers generally, Puerperal Fever, Typhus Pneumonia, &c.

By this plan, it is proposed to inhale the fumes of mercury, and to take them into the lungs.

The process explained. The system is placed by this practice under the mercurial influence in a very short time, in twelve hours, and it must be a very intractable state of the body, which can hold out more than two or three days. Vide Dr. S. Jackson, of Northumberland, Pa., on this subject, American Journal Medical Science.

The combinations of mercury with Iodine, will be considered under the head of Iodine.

The third division of the mercurial preparations includes those formed with acids.

These preparations are the most energetic.

The first is *Hydrargyrum Nitratum Rubrum*, *Red Precipitate*, or *Peroxide of Mercury*.

Preparation—Seldom used internally—sometimes violent in its operation, even in doses of a grain.

Employed as an external application to cleanse ulcers and to stimulate them to action. As an escharotic, it is used to repress exuberant granulations, and with lard it forms an ointment for various purposes.

Sub-Persulphate of Mercury, or *Turpeth Mineral*.

Preparation—It is too harsh for general use, and is seldom employed. Its action is not confined to the primæ viæ, but it is apt to produce salivation, if a purgative is not employed soon after.

The *Ammonio Chloride of Mercury*—White Precipitate.

This article is only used externally in the form of ointment, in the proportion of ʒi. of the salt to ʒi. of simple ointment, and is of great value in obstinate eruptions, herpetic affections, psora, &c.

Adulterated with white lead, chalk, or gypsum.

The combinations of mercury with chlorine, are the most valuable and efficacious remedies the M. M. affords. They form the Per and Proto-Chloride of Mercury.

The *Per-Chloride of Mercury* is formed by subliming a mixture of the Bi-Sulphate of the Peroxide of Mercury, or Turpeth Mineral, with the Chloride of Sodium, the Per-Chloride being formed during the process.

This is the most corrosive and acrid preparation of Mercury with which we are acquainted. It was first introduced in the treatment of Syphilis by the celebrated Van Swieten, and by him recommended in the form of alcoholic solution. He was led to the employment of it, from a suspicion that salivation was not requisite for curing this class of diseases, and from the great abuses practiced with the mercurials in these cases.

He commenced his experiments with it, and meeting with much success, recommended it to Maximilian Locher. He employed it at the Hospital of Vienna, between the years 1754 and 1762, and cured by it no less than 4,880 persons, without inducing salivation, and testifies that no person died, or experienced the least dangerous or painful symptoms in consequence of this remedy. The cures that were effected were permanent.

Its opponents state, on the other hand, that other mercurials are quite as effective and speedy—that the cure by Corrosive Sublimate is not permanent—and, lastly, that its corrosive and irritant properties render its employment objectionable.

This article has been very fully tested in this country, and more particularly by the late Dr. Hosack, of New-York. He is fully convinced of its anti-venereal powers. That the severe effects attributed to it by Swediaur and others, upon the stomach and the intestinal canal, he has never noticed—and, on the contrary, that from its mildness in proper doses, it can be given to children, and even infants, laboring under hereditary taint.

Our opinion founded upon some experience is, that the Blue Pill, or Calomel, are by far the best remedies for the venereal in its first stages, but that after these have passed off, and the secondary have commenced, the Corrosive Sublimate, aided by decoctions of Sarsaparilla, or combined with the Syrup of Sarsaparilla, as already mentioned, will be found to be better than any other preparation.

Forms of administration—In the form of pills, or dissolved in spirits, as follows :

℞. Corrosive Sublimate, grs. iv.

Alcohol, 3 i.

The dose for an adult is xxv. drops, which is equal to $\frac{1}{4}$ of a grain.

For a child, iv. to vi. drops—repeated three or four times a day.

Formula for the pills :

℞. Corrosive Sublimate, grs. iv.

Muriate of Ammonia, grs. xv.

Distilled Water, 3 iss.

To this is added as much of the crumb of bread as will make it into a mass—divide into one hundred and twenty pills.

Each pill contains the $\frac{1}{3}$ of a gr. of Mercury.

The Muriate of Ammonia is added, because by it the Corrosive Sublimate is rendered more soluble in water.

The Per-Chloride is employed in other diseases with advantage.

In *Ulcers* which have existed a long time.

In *Cutaneous affections*.

In *Rheumatism*.

In *various Chronic Inflammations* it is a valuable article combined with the vegetable alteratives, particularly Sarsaparilla, and in these cases is given in very minute doses, as the $\frac{1}{3}$ or $\frac{1}{2}$ of a gr. in a pint daily. It is to be continued as long as it is thought necessary, taking care to watch its effects upon the mouth, and always keeping in view, that mercury given in excess, will tend to increase, rather than destroy constitutional irritation.

The value of this combination may be inferred, when we state our belief, that Swaim's Panacea owes its efficacy to the union of these substances, and when you consider the numerous and diversified affections in which this medicine has been employed, and the beneficial effects which have generally been derived. We have introduced this subject again to your notice, as much with a view to bring to your recollection what was then said, as to inform you, that the suspicions which we expressed of the composition of the medicine, have been confirmed by conversation with several gentlemen. The composition had been investigated by Professor Hare, and others, and from the evidence of circumstance, there could be little doubt on this subject. So general was the belief, that most of the physicians of Philadelphia were in the habit of preparing it for themselves.

The Per-Chloride of Mercury dissolved in a Tincture of Cinchona, in the proportion of ij. grs. to an ounce, and given in doses of x. or xv. drops, according to the age of the patient, twice a day, will be found a valuable medicine in the Chronic diseases of children, and with particular good effects, in those cases where there is enlargements of the mesenteric glands.

Many of the empirical remedies, which are boasted of as curing Syphilis without mercury, owe their efficacy to this substance. The dose being small, it is easily disguised with other articles with which it is mixed, and it is less liable than the other preparations of mercury to excite ptyalism.

Externally it is employed for various purposes.

In combination with lime-water, it forms the yellow-wash, so much recommended in the treatment of obstinate and ill-conditioned ulcers.

Poisonous operation of the Per-Chloride.

Effects upon the system in large doses.

It acts as a poison in these cases by virtue of its affinity for albumen, fibrin, and the other constituents of the tissues. The corrosive action exerted upon the stomach, is extended to the heart and brain, and death is the result of the suspension of the functions of these two organs so essentially necessary to life.

Treatment to be pursued.

Antidotes—The best is albumen, or the white of eggs beat up with water, and taken in large quantity. It decomposes the corrosive sublimate, and forms a triple compound, consisting of albumen, muriatic acid and calomel—An ounce of the white of eggs is required to neutralize 3 grs. of the corrosive sublimate.

Along with the use of this article, blood-letting should be had recourse to, if the organs of the abdomen are in a state of inflammation, for it is not uncommon to find Gastritis, Enteritis, and even Peritonitis, as the consequences of this accident.

Local bleeding by leeches should be added, and fomentations to the abdomen.

The next of the combinations of chlorine, is the

Proto-Chloride of Mercury, Calomel.

It is prepared by rubbing purified Quicksilver with the Per-Chloride

of Mercury until the globules disappear. It is then sublimed in a glass matrass, or Florence flask. When sublimed, it is reduced to powder, and well washed for the purpose of separating any portion of corrosive sublimate which may have been formed in the process. It is again sublimed, and washed—corrosive sublimate being soluble in water, and calomel insoluble, this is a ready mode of separating them.

This is the most important and the most extensively employed article in the whole range of the *Materia Medica*. It is capable of fulfilling more indications, and of being applied advantageously to a greater variety of diseases, than any other article which is furnished by the vegetable or mineral kingdoms.

It is anti-syphilitic, anti-spasmodic, alterative, deobstruent, purgative, errhine, sialagogue, and anthelmintic.

General operation of Calomel on the system—Mercury when rendered active by chemical changes, as in the state of an oxide, or neutral salt, seems to be a stimulus to every part of the system. When taken into the system it manifests itself by a quickened circulation, gives the blood the disposition to take on the buffy coat when drawn, renders the pulse frequent and harder, increases respiration, excites the temperature of the body, occasions a whitish fur on the tongue, and other symptoms of general inflammatory action.

It seems also to be a stimulus to all the excretories of the body, of the salivary glands, of the trachea, lungs, digestive organs, the chylopoietic viscera, and the whole alimentary canal.

It is slow in its operation, but when accumulated in the system to a sufficient degree, its action is exhibited in the production of such excitement, as to be called *Morbus Mercurialis*, during which the functional operations of all the systems of the body are quickened and excited to a very great degree.—*Francis' Inaugural Dissertation*.

It is these various and diversified powers, which give to mercury its very great superiority, and as particular effects are produced by regulating the dose, it becomes a remedy very generally applicable to diseases.

The good effects of Mercury in *Fevers*, depend—

1. On its power of evacuating *bile*, *fæces*, and the *morbid secretions* of the alimentary canal. It is well known, that in malignant fevers, the intestines are loaded, not only with increased quantity, but a vitiated quality, of all the secretions which are poured into them. These, by retention, are not only increased in the degree of their morbid qualities, but by their accumulation become, in reality, exciting causes of disease. They have been known to possess such a degree of acrimony, as to excoriate the rectum, and the skin of the neighboring parts. For the removal of these acrimonious matters, the milder cathartics, as the neutral salts, &c. have been resorted to, for fear of increasing the debility which exists. But Calomel alone, though generally in combination, surpasses all other cathartics, not only evacuating the contents of the bowels, but by exciting the several glands which empty into them, to a free and copious discharge, changing the character of their vitiated se-

cretions, relieving topical congestions, and by removing the causes which indirectly debilitate, the patient is strengthened.

2. The good effects of mercury in the cure of fevers, depend upon its exciting a new action in the vessels, or one different from that which constitutes the proximate cause of the disease, and accordingly, we find, that as the mercurial action begins to exhibit itself, the symptoms of the original disease subside. This action commences with the approach of salivation, which seems to be the test of the mercurial impression. The fact of the original disease giving way, upon the approach of the Mercurial, is so well established, that it hardly seems necessary to adduce proofs. For your satisfaction, we might detail the opinions of the most distinguished advocates of the mercurial practice on this point, of Drs. Rush, Chisolm, Clark, Warren, and others.

Application of Calomel to the cure of Diseases.

In *Yellow Fever*, the practice of several physicians stated—of Warren, Chisolm, Clark, and of the resident physicians of Charleston, during the several seasons that it has appeared as an epidemic.

We would not wish to be understood that the mercurial is the only practice which is to be pursued. We are, on the contrary, most favorable to the employment of general and local blood-letting in this fever, the use of the cold affusion, purgative, and diaphoretic medicines, with blisters, and the benefits to be derived from a rigid system of abstinence, when that peculiarly irritable and inflammatory condition of the stomach takes place, which precedes and accompanies the black vomit. With these means we have combated this severe disease, and the practice, we have had reason to think, was as successful as most of our medical brethren.

In severe cases it was observed, that the high excitement of the system, resisted the mercurial action, and though employed in large doses, and repeated at proper intervals, yet it failed to produce its specific effects, and death was often the consequence. In other cases where this excitement was less violent, the peculiar effects of the mercury were produced, and with the pyalism a gradual subsidence of all the symptoms took place. In these cases, we have every reason to think, that equally beneficial effects follow from the practice just mentioned—and on some accounts it was preferable, as patients in their convalescence were not distressed with the disagreeable effects of sore mouth, swelled tongue, &c. The mildness of the particular case, as Bright and Addison observe, permitted the usual operation of the remedy, rather than that the remedy controlled the fever.

In the *Bilious Remittent*, or *Country Fever*—The beneficial operation of this medicine in these cases, may be inferred from what has been said of the peculiar operation of this article, in another place, upon the alimentary canal and the chylopoietic viscera. To the advantages arising from the use of mercurials in this form of fever, it may be added, that relapses are less likely to follow, than where the purgative and diaphoretic course is pursued. Exercising an influence so powerful as this medicine does, and in the several modes pointed out, we still think, that in the very acute diseases of our country, it is not alone

sufficient. In this disease, as well as Yellow Fever, blood-letting at the commencement, is of the utmost importance in diminishing action, lessening undue determinations, reducing inflammation, and other effects of which we have already spoken. Neither can we depend upon Calomel as a cathartic, for in these acute cases its operation is too slow, and the sufferings of the patient require that prompt measures be enforced. It is proper, therefore, to alternate its use with the saline cathartics, and this course continued until the disease begins to decline, or the mercurial preparations to exhibit their effects upon the system, either in improved secretions, or if still further continued, in its impression upon the gums and salivary glands.

While thus advocating the use of this article, we cannot too earnestly caution you in the administration of it. Salivation is always painful, and very distressing to convalescents. All that is required is a gentle mercurial impression to the extent of producing tumefaction of the gums, and a slight spitting. This is what most practitioners will allow is all that is to be desired. Yet, from a careless employment of the medicine, the sialagogue operation often takes place to a great, and even alarming degree. It is, therefore, important that you should be informed how it may be obviated, and by attention to a few rules, you will, in most cases, succeed.

RULE I. In those cases where Mercury is employed, examine the evacuations of your patient, and as soon as they are changed, either from a dark, ash or grey color, to the color of bile—or their consistence from being thin and watery, to a more natural appearance, which will always take place when the liver pours forth a more healthy secretion, the medicine should be discontinued, or given at longer intervals.

RULE II. By omitting the use of the medicine as soon as it exhibits the first indications of action upon the gums. These are redness, a peculiar fetor upon being rubbed, and a slight ulceration about the teeth.

RULE III. By attending to the constitution of the patient. The sialagogue operation of mercury is very badly borne by persons of delicate habits, in whom the nervous temperament chiefly prevails. It is badly borne by persons advanced in life, whose constitutions have been impaired by previous attacks of sickness, and who are, therefore, weak and enfeebled.

RULE IV. The sialagogue operation of mercury should not be attempted in persons under twelve years of age. By attending to these rules, severe instances of salivation will be prevented from occurring, we will not say invariably, but in a great majority of cases. Only observe the same precautions with this medicine, which are used with other active articles. We discontinue the use of opium when sleep is induced—digitalis when it affects the brain and the organ of vision—arsenic when it produces intumescence of the cellular membrane, and calomel when it *changes the secretions*. This is sometimes difficult to be discovered, but attention is, on that account, the more necessary, particularly as its effects are more lasting and distressing.

In *Typhus Fever*—In the early stages it is useful as an evacuant, to relieve the intestines of black and viscid matter, and abate the symptoms.

In the advanced stage it is resorted to as a stimulant in small doses, united with very small doses of opium, to bring on a mercurial fever, and to sustain the actions of the system.

In the *Phlegmasiæ*, and more particularly of the glandular system, is mercury used and recommended.

In the acute attacks of Hepatitis, more active measures are required—but in chronic cases, no other practice than the mercurial can with safety be trusted. The secretion of healthy bile, says Johnson, the flow of saliva from the mouth, and a gentle and uniform perspiration on the skin, were synchronous effects of the medicine, and certain indications of an approaching cure.

Where Inflammation of the liver runs through its stages with rapidity, as in India, calomel must be resorted to early and vigorously, and it must be given in large doses until ptyalism is excited. It operates beneficially in preventing suppuration, and other derangements of its structure, by forcing it on to an active secretion, by which its state of congestion is relieved, as congestion or undue determination is relieved in other instances, by a spontaneous active secretion, producing *resolution* of the inflammation.

To the many operations of mercury, a new title has of late been added, viz: an *anti-inflammatory operation*. It derives this title from its efficacy in the cure of Ophthalmia—its efficacy in every symptomatic Venereal inflammation—its success over the Hepatitis of India, and its utility in other Inflammatory affections. With an anti-inflammatory intention it is employed in Pneumonia, Rheumatism, and other cases—and it seems to do good in these cases by its power to equalize the circulation, and enable the capillary system of vessels to resume their secretory offices as before.

Practice pursued by Dr. Hamilton in the employment of this medicine.

In Inflammatory affections of the Throat.

In *Cynanche Trachealis*, or *Croup*, Calomel has been recommended by the Scotch physicians in the highest terms. With the views which have been presented of this disease, it should be treated actively in the commencement until inflammatory symptoms are abated—afterwards no medicine will be more effectual than Calomel in small doses frequently repeated, calculating that beneficial effects would arise from its equalizing the circulation, and restoring to the capillaries their accustomed powers of secretion.

In *Pneumonia*, Mercury has also been recommended. The treatment should be the same, active depletion at first, and Mercury combined to subdue the remaining excitement.

In *Phthisis Pulmonalis*, we have many and contradictory reports. The reports of Dr. Rush, of the efficacy of this treatment, gave rise with some to sanguine expectations, that a remedy was at length discovered for this medical opprobrium. Mercury has been tried to the extent of producing salivation, and it has been known to suspend all the symptoms of Tubercular Phthisis, the patient not coughing during the ptyalism. But though the symptoms may be suspended, they recur as the mercurial affection abates, and the patient dies after a long

course of the disease. In short, we never knew of recovery from phthisis by mercury, or any other means, where the tubercular form of the disease was characterized.

Bronchitis, after refusing to yield to all the artillery of the antiphlogistic treatment, and after continuing a period which threatened to end in consumption, has had all the symptoms attending it, yield to small doses of calomel and James' powder, repeated several times a day. The mercurial commonly quickened the pulse a little before the gums were affected, but after a slight ptialism was produced, the pulse has commonly subsided, the patients lost their other symptoms, and were regularly convalescent from that period.

In *Rheumatism*, after action has been sufficiently reduced, diaphoretics become useful. Their utility is much increased by the addition of calomel, and as far as we can judge from experience, the combination of this article with opium and ipecac., will be found well adapted to these cases.

In the *Intestinal affections*, mercury has been used with advantage.

In *Dysentery*, it has been extensively used, especially in warm climates. In the milder forms of the disease, the common methods of treatment will, doubtless, succeed, as venesection, purgatives, anodynes. But in the more violent attacks of it, such as occasionally appear in our climate, and especially in the East and West Indies, it is a medicine very much relied upon. It is given in these cases in large doses, as xv. to xx. grs. until ptialism is excited. when, as is asserted, upon the testimony of all writers on this subject, the disease subsides. It operates beneficially in the several ways I have mentioned, restoring the biliary secretion with the other secretions of the body.

From the circumstance that it is often better retained in large doses than small, from its allaying vomiting and irritability of the intestinal canal in cholera, diarrhoea, dysentery, and some other cases—its action in these large doses would seem to be *sedative*, and this would appear to be the opinion of physicians practicing in the East Indies.

In *Malignant dysentery* it requires to be given in large doses.

In *Dyspepsia*, Mercury is a valuable article. The principle to be kept in view in the treatment of some forms of this disease, is, together with the use of means which give vigor to the alimentary canal, we should also employ those which correct the morbid state of the liver. Mercury, says Wilson Philip, has a specific operation on the liver—a power not only of exciting its functions, but of correcting the various derangements of that function in a way which it does not possess with respect to any other organ, and which no other medicine possesses with respect to the liver.

Its use should be discontinued when the appearance of the alvine discharges indicates the return of a healthy secretion. With its improvement the skin generally becomes relaxed and of a proper temperature, the pulse more dilated, the color and expression of the countenance better, and in particular, that expression of languor so peculiar to the advanced stages of the disease abates.

In *Cholera Morbus*, mercury exhibits equally valuable effects. Its employment fulfills many indications. It allays the inordinate gastric

irritability, lessens the too abundant secretion of bile, and by equalizing the circulation, relieves the congestion of the vessels which form the vena portæ.

In this disease, from the great irritability of the stomach and upper part of the intestinal canal, few evacuating medicines, if required, could from their bulk be retained. They could only add to the general distress.

Calomel is, therefore, peculiarly useful in this situation—it is inodorous, insipid, and is comprised in a small compass. It is, therefore, highly probable that it will be retained in the stomach, and if a sufficient number of doses are given, it will remove the offending matters of the primæ viæ—It equalizes the hepatic secretion—It is well calculated to contend with this complaint, and we have known a single dose, or a couple, relieve all the urgent symptoms, after oil and laudanum, enemata, cathartic and anodyne, fomentations, and a variety of other means, have been employed to no purpose.

The practice we pursue, is to administer four or five grains in pill or powder, combined with one grain of opium, or alone, according to the degree of irritability, every two hours, until the disease subsides. Other means are to be employed which will be pointed out to you by the professor of the practice.

In *Cholera*, (*Asiatic*)—Dr. Griffin asserts that Calomel proved a most successful medicine in Cholera, controlling or arresting its progress in eighty-four cases out of one hundred, when administered while the pulse was perceptible at the wrist—but, on the contrary, proved detrimental when given in the collapse. The practice was tested in fourteen hundred and forty-eight cases. The dose was from $\mathfrak{D}i$. to $\mathfrak{D}ii$. every hour or half hour.

In speaking of the use of Calomel in this and other diseases, you must not conceive that any article is sufficient of itself to effect cures. It is only one of the means, which is often useful in conjunction with such other aids, as are to be derived from diet, clothing, the preparation of the system, the stage of the disease, and other circumstances of which you must judge.

In the Intestinal Derangements of Children, nothing to add.

In *Tetanus*, relief has commonly been expected from the employment of opium, given to a large extent. Much experience has convinced me of the entire inefficiency of this plan of treatment, and the necessity we are under of looking to other means for the subjugation of this distressing affection. Of those to which I would next resort, mercury promises to be most powerful. As the progress of the disease is rapid, we would employ it in doses of ten or twenty grains, every two hours, until an impression was made on the system, employing at the same time mercurial frictions. Dr. Rush cured a case of this disease by salivation, aided with bark and wine. The German physicians speak highly of the same practice, and my friend, Prof. Dickson, has succeeded by the use of the same means.

In *Dropsies*, the utility of mercury is well known. Combined with various diuretics, it promotes their operation, and increases the activity of the absorbents. When the disease is connected with visceral ob-

structions, the employment of this article is attended with the happiest effects.

It would be easy for me to dilate upon the application of mercury to the cure of diseases, as there is scarce one in which it has not been used, and the beneficial effects of which, at one stage or the other, has not been acknowledged. The greatest difficulty we have experienced, has been, to condense the matter which is to be found relative to its application. There is one other disease, in which its very great importance should not be overlooked, viz: its use in Syphilitic affections.

We shall conclude the account of the application of mercury to the cure of diseases with its use in *Syphilis*. My hearers already know that mercury is the grand remedy in all complaints unequivocally venereal. This is so much the case, that this medicine is usually regarded as a specific, and the only one to be depended upon for a cure.

The origin of the venereal disease has been a subject of much debate among most medical writers. By the greater part of them we are informed that it was brought by Columbus and his companions from the West Indies, between the years 1494 and 1496. The proofs, however, in favor of this origin are all equivocal, and we shall find much difficulty in ascertaining the precise period of its appearance, as well as of the causes which gave rise to it. In whatever manner it arose, says Mr. Hunter, it certainly began in the human race, as we know no animal that is capable of being infected with this poison. It is probable too, he says, that the parts of generation were the first affected; for if it had taken place in any other part of the body, it might probably never have gone further than the person in whom it first arose.

Desruelles attributes the origin of the disease to irritation, and refers its appearance among the Spaniards on their return with Columbus, to their licentious conduct with the Aborigines of America, aided by the novelty of their situation, the influence of climate, diet, &c.

When the disease first made its appearance in Europe, its malignity was so great, that the consternation produced by it may more easily be conceived than described. The manner in which the disease was communicated—the rapidity with which it passed from one order of disgusting symptoms to another—and, above all, the want of knowledge of the remedies which were proper to arrest its progress, furnished reasons sufficiently strong for regarding it as one of the most destructive scourges which had been inflicted on mankind. We can form no idea of the disease at that period from its present appearances. There can be little doubt at present of a change of character of the Syphilitic disease, and that its symptoms are milder and more tractable. Astruc observes, more than one hundred years ago, that the disease is less violent, its symptoms not so many, so painful, or so difficult of cure—it yields more readily to remedies properly applied, he says, and seems by little and little to approach towards a cure.

On its first appearance in Europe, of a hundred persons infected, there were no fewer than ten deaths. If such was its character on its first appearance, the importance of a remedy calculated to arrest its progress, may well be conceived.

In the medical history of mercury, we have given you an account of

the manner in which this article came to be employed in the treatment of Syphilis, and stated to you that it was to the Arabian physicians we are indebted for its application to the purposes of medicine. Rhazes, we are told, recommended an ointment, in which quicksilver was an ingredient, for the cure of cutaneous diseases, and the practice we may suppose soon became common, to apply it to diseases having a syphilitic origin. From its external use it began to be ventured upon internally, and we find about the year 1535, this mode of exhibition beginning to be practiced.

It is not necessary to employ your time with an account of the variety of preparations which were in vogue, nor of the empirical and barbarous practice which was pursued, but will at once pass over this period to the eighteenth century, when this disease began to be treated on scientific principles. The doctrines of Mr. Hunter have had a greater effect in producing revolutions in the theories formed, concerning the nature and treatment of this disease, than any that preceded him, and even at this time, have a very great effect in regulating the practice upon this subject. Having had such extensive influence, it may not be amiss to state the leading opinions entertained by him on the subject of the venereal. He considers—

1. That the venereal poison being taken into the system, becomes universally diffused, and contaminates such parts as are susceptible of the venereal action, and that it is soon after expelled with some of the excretions.

2. That the parts contaminated do not immediately go into venereal action, but that they acquire a new state or condition, which is termed a disposition to take on venereal action.

3. That the number of parts contaminated does not depend upon the quantity or strength of the virus absorbed.

4. That the disposition once formed in a part, necessarily goes on to action at some future period.

5. That mercury can cure the venereal action, but cannot remove the disposition which has been previously formed, and has not yet come into action.

6. That although mercury does not destroy the disposition already formed, yet that it prevents it from forming.

7. That though the disposition continues, it does not go into action during the use of mercury.

8. That the action having once taken place, goes on increasing without wearing itself out.

9. That parts once cured never become contaminated again from the same stock of infection.

10. That the matter of the secondary ulcer is not infectious.

11. That the venereal matter is as soon destroyed in a large chancre, as in a small one, the mercury acting equally on every part of the sore.

Such is a summary of the views of Mr. Hunter on this subject, and the more closely they are examined, the more strictly will they be found to accord with the progress of the disease. Some of his positions are not clear in their expression, and are ambiguous in their mean-

ing, particularly that which relates to the disposition of parts to take on the venereal action.

It is not my intention to enter upon a defence of Mr. Hunter, but to bring before you the treatment he recommended, and which has a number of advocates.

Mercury, he says, must be employed both externally and internally, in every case, let it be ever so slight, even when the disease has been destroyed at its commencement, as when the ulcer is touched with nitrate of silver.

It must be employed during the whole time of the cure, and continued for some time after the chancres have healed.

It should be carried to the extent of producing a slight sialagogue operation, when it must be discontinued, or kept up by smaller doses several days. We have already referred to the pernicious extent to which ptyalism has been carried. I have heard, says Dr. W. Philip, the late Dr. Munro, of Edinburgh, state the quantity of saliva which must be discharged to eradicate particular affections. A slight salivation, as we stated, is sufficient in most cases, and it is most effectual when produced by small quantities of mercury, gradually introduced, than when the condition of the system is suddenly changed by a large quantity.

If the remedies have been applied before the venereal matter has been absorbed into the system, the disease will terminate with the healing of the mouth.

But if matter has been absorbed, other parts of the body may acquire a disposition, as Mr. Hunter calls it, to diseased action, as the skin, the throat, the bones, and the disease will appear severally in them, and in the order in which they succeed.

This is the part of Mr. Hunter's doctrine which has been the subject of much controversy. It has been asked how is it possible to prove that a venereal disposition has, or has not existed, at any particular time?

If after a certain course of mercury, and the consequent removal of a chancre, blotches should appear, then says Mr. Hunter a disposition had been formed which no quantity of mercury could have destroyed. But the critics say, may we not with at least equal probability affirm, that mercury had been insufficiently used.

If, on the other hand, after such a course, no blotches should occur, the friends of the doctrine tell us, the secondary order of parts had not been contaminated. But in this it may be contended by the opposite party, that the mercurial course had been judicious and efficient.

Of the *modus operandi* of *Mercury*.

Mr. Hunter, in speaking of the nature of the venereal matter, regards it as a poison, which irritating the living parts in a manner peculiar to itself, produces an inflammation peculiar to that irritation, and from which a matter is produced peculiar to that inflammation. The good effects of mercury depend upon its exciting an action incompatible with that which existed, counteracting the venereal irritation by producing another of a different kind. Upon the principle, then, that no two morbid actions can exist at the same time in the constitution, is erected his views of the curative operation of mercury in Syphilis.

The theory here advanced, though not strictly tenable, is probably

the most reasonable which has been delivered. That two morbid actions can exist at the same time in the constitution, is supported by the occurrence of small-pox and measles in the same individual, of hooping-cough during the eruptive stage of small-pox, small-pox combined with scarlatina, vaccination and measles.

But it is the most plausible on these grounds, because we know that mercury is a universal stimulus, causing great irritability of the constitution, making the heart to beat faster, and rendering the arteries more rigid, so as to produce a hard pulse. We also know that it produces a disease, or a peculiar and unnatural mode of action, changing the action of the extreme vessels, particularly the secretory vessels of the body, and it is to this double operation that its good effects may be attributed.

The theory of Mr. Bell is less tenable. It proceeds upon the supposition that mercury being carried into the constitution, combines with and neutralizes the matter of the disease.

This opinion is supported upon the experiment of the matter of lues venerea being mixed with triturated mercury, becoming inert and incapable of producing disease upon inoculation.

The assumption of such an operation is altogether gratuitous, and the venereal matter becoming inert, can be admitted only as a species of chemical agency upon inorganized materials, and will by no means apply to the organized animal body. If the operation of mercury depended upon this principle, the successful treatment of the disease would depend upon the quantity of the medicine employed. This is at variance with the opinion of most practical men on the subject.

The operation of Corrosive Sublimate would seem to depend upon a very different principle.

Such is a concise account of the venereal disease, and of the manner in which it has been treated for the last century, and by many still at the present time.

It becomes our duty to state, that within the last few years, the propriety of employing mercury to the extent which has been done, in diseases of the genitals, has been questioned, it being asserted that many affections having a near resemblance both to the primary and secondary symptoms of syphilis, have been cured without the use of mercury. The subject has excited the attention of many distinguished surgeons, and the result has been a conviction, that the genital organs are subject to ulcerations, arising either from want of cleanliness, or from the acrid secretions of the parts. That these ulcerations bear a very close resemblance to syphilis, but may, in the generality of cases, be distinguished from it, the pathognomonic characters having been pointed out by Carmichael, Abernethy, and others, to whom we would refer you.

Though a similitude exists in some cases to a great degree, there are generally, some marks by which they may be distinguished.

They have not the character described by Mr. Hunter, but are less retorted at their edges, more shallow, more rapid in their progress, and pour out more abundantly an acrid discharge. Mercury internally seems to aggravate them, and the ulcers heal readily by the use of astringent washes and a purgative course. The practice, therefore, which

has been recommended in cases which have not the decided Hunterian character, is to give up the use of mercury in the primary ulcers, treating them as if they were simple ulcerations, by cleanliness, rest, abstinence, and simple applications. *But if they remain open beyond a reasonable length of time, mercury should certainly be used.* The same principles are to be observed in the case of buboes and cutaneous eruptions.

The efficacy of this practice has been confirmed in our attendance at the Marine Hospital of this city.

In a very few cases was mercury employed, and then with a very sparing hand. The result has been very gratifying, inasmuch as the patients were restored in a comparatively short space of time, without those distressing effects which frequently follow the use of this article, or those tedious and painful complications which arise from other diseases being developed by the mercurial irritation.

1. Ulcerations of the penis have been treated as simple ulcers, by mild evacuants from the bowels, the use of astringent washes, the lunar caustic, simple dressings, a moderate and spare diet. By this course, with an occasional variation of the remedies, the local injuries of the genital organs have been healed in the course of a few weeks.

When they exhibited an indolence in their action, or continued open longer than is thought prudent or safe, they are then excited by the use of mercurials externally employed, and occasionally internally exhibited.

2. Buboes, in their different stages, have been speedily reduced by the same means. In their inflammatory state, and even after suppuration had commenced, they have yielded to blood-letting, evacuants, repeated at regular intervals every other day, or twice a week, rest, and a recumbent posture, the use of cold applications or blisters, and a regulated diet. The most severe cases were relieved in five or six weeks.

3. Where buboes have ulcerated before admission, or a day or two after admission, the same course was pursued, and with effects equally gratifying.

Throughout, these affections which have so long been considered as arising from a specific virus, were treated as inflammatory affections of a simple character, and in no instance was failure or disappointment experienced.

When improvement did not follow this course after it had been pursued a sufficient length of time, then the mercurials were properly resorted to.

In *secondary affections*, a non-mercurial course, or a very sparing use of mercury, was pursued. In only one case admitted during our attendance, the internal employment of mercury created much distress from the general irritability of the system, and particularly the digestive. In this opiates were necessary with the use of the vegetable alteratives, and the external employment of the mercurials as a dressing to the ulcers, until an action was manifested on the gums. Under this cautious use of mercury, combined with the vegetable alteratives, a healing action was established, and ulcers which would have been extremely tedious and obstinate under another course, speedily cicatrized.

At this stage, let me digress a little from the subject, and state to you,

that when from the proper and sparing use of the mercurials a healing action is not set up or established, we recommend that these remedies be discontinued, and other alteratives employed, and under these circumstances we would strongly recommend to your attention some of the preparations of Iodine, particularly the Iodide of Potassium, or Iodide of Iron.

Secondary symptoms, from this non-mercurial practice, were not seen, or they did not occur before the patients were discharged.

It should be noticed, further, that these symptoms follow in pseudo-syphilitic cases, as in true syphilis. They are said to occur more frequently, and appear at an earlier and more determinate period, than when mercury has been used, but they, in many cases, have gone off as soon. Never, as has been supposed, proceeding from bad to worse, or from one succession of parts to another in unabated violence—On the contrary, they do not exhibit the same violent and unrelenting symptoms which have been observed when mercury has been used.

Chances of secondary symptoms.

If the primary sore be destroyed during the first six days of its existence, no secondary symptoms will follow.

If six months elapse after the cure of a chancre, (no mercury having been exhibited,) without the appearance of secondary symptoms, all fear of constitutional symptoms may be laid aside.

The practice above detailed, seems to be such as our present knowledge of the disease authorizes and prudence sanctions. It is the practice of several English Army Surgeons, as well as of Mr. Carmichael, and Mr. Abernethy. It was observed, as we have mentioned, by Astruc, more than one hundred years ago, that the venereal disease was milder then than upon its first introduction—the same remark may be made respecting the present appearance of the disease, and what it was in the time of Astruc.

Morbid effects produced from the use of Mercury.—The first is the Erethismus Mercuriale, the Eczema Mercuriale, and Hydrargyrum, all having allusion to the same affection.

The disease consists in an eruption on the skin, varying in appearance from a light rose color to a dark red, and even to a purple, accompanied with heat, itching, fever, headache, and gastric symptoms.

It commences about the scrotum, the inside of the thighs, groins, and spreads over the body.

Desquamation takes place on the fourth day.

Varieties in the disease.

That it is produced by mercury, is proved by this circumstance—that mercury aggravates the symptoms of the complaint—that it will cease upon its being discontinued, and reproduced by too early a recurrence to the medicine.

The causes—Sometimes dependent upon a peculiar idiosyncrasy of constitution, obnoxious to mercurial remedies.

A certain state of the skin, also favorable to the production of the disease.

When these predisposing causes exist, a very small quantity of mercury will excite it into action.

Treatment—All mercurials to be discontinued, for it is remarkable, as soon as mercury shows its morbid effects, its anti-venereal powers cease—remove the patient from the apartment in which they have been exhibited—advise tepid bathing, and some gentle purgative.

Salivation, another of the morbid effects of mercury, and sometimes by its violence a more distressing disease than the original complaint.

Salivation, though not necessary to the curative operations of mercury, is, in the opinion of most practitioners, a desirable effect of the mercurial practice. Those very profuse salivations which were at one time thought so essential for the full attainment of its beneficial effects are now happily abandoned, and physicians in all cases would be satisfied with only a moderate sialagogue operation. This, however, cannot always be obtained for the reasons stated.

The only mode to prevent these effects, is to exercise great caution, to watch the progress of symptoms, and to observe the *rules* advanced upon this subject.

To these rules we would add, that we prevent the severe effects of salivation, by attending to the constitutions of patients who are under our care. Mercury is improper in every system submitted to medical treatment. It is badly borne by persons of delicate habits, those in whom the nervous temperament prevails, and possessing much mental, as well as corporeal excitability. It is generally better borne by males, than females—by the active, than by the sedentary—by the well, than the badly fed—and it is better borne by the hardy inhabitant of the country, than by those residing in cities.

The Sialagogue operation of mercury is generally very severe in persons somewhat advanced in life, whose constitutions have been impaired by previous attacks of sickness, and who are, therefore, weak and enfeebled.

The Sialagogue operation of mercury, should not be attempted in young persons under twelve years of age, for a similar inequality exists at this period of life between the strength of the impression, and the resistance which the soft parts oppose.

When the disease is formed, the first object is the mitigation of pain. This is done by the use of gargles, as a solution of opium in water or milk, a strong infusion of green tea, a solution of the acetate of lead, to which is added a portion of laudanum.

Emetics have been considered useful in counteracting the inordinate effects of mercury. They have been said to have succeeded in arresting inordinate salivation, and the progress of gangrene.

Cathartics—Sulphur—Blisters as counter-irritants, iced water, leeches, cooling applications.

The use of the Chlorate of Potash internally, and as a wash for the mouth.

When sloughing exists—

Pyroligenous acid diluted with water—a solution of the Chloride of Soda or Lime—Spirits of Turpentine, rubbed up with mucilage—a decoction of the root of the *Rhus Glabrum*.

The third object is to restore the tone of the parts. This is done by astringent gargles, as red rose leaves, red oak bark, a decoction of galls, with a small portion of honey and alum.

To the consideration of Mercury, *Iodine* may properly succeed, as it is allied to it so closely in its operation and effects.

IODINE.

THE simple substance Iodine was discovered in the Soda derived from the incineration of certain marine vegetables, by Mons. Curtois, in 1813.

Its properties were investigated by himself, but principally to Sir H. Davy, and Gay Lussac, do we owe much of our knowledge of the chemical habitudes of Iodine.

Physical properties—

It is a soft, friable, opaque substance, in the form of crystalline scales.

Color, bluish black, metallic lustre.

Odor, resembles chlorine very closely.

Taste, hot, acrid, pungent.

Its effects upon the system—

It is stimulant in its operation, and acts also upon the lymphatic system—is alterative in its operation, and allied to mercury.

When carried to a great extent, very considerable emaciation takes place, and the gland of the mamma undergoes a considerable diminution in its volume.

It is absorbed into the system, can be detected in the blood, in the urine, in the perspiration.

Operation of Iodine upon the stomach.

In moderate doses it occasions a slight sensation of heat in the mouth and throat, with thirst, pains in the abdomen, with diarrhoea.

To these effects are added, a disturbance of the other organs, particularly of the brain.

In larger doses, all the symptoms of gastritis, with accelerated pulse, heat of skin, tenderness of the gums, with redness and separation from the teeth, with increased discharge of saliva.*

In very large doses, the disease called Iodism or Iodosis.

Given in proper doses, it stimulates without exciting irritation.

They act upon the mucous surfaces and upon the different organs.

It gives activity to the circulating system.

It increases the appetite and improves the vital powers generally.

* *Antidotes.*—It is easily and readily rendered inert, by a solution of starch, with which it unites, and is then but little soluble. To allay irritation, milk, albumen, and a solution of gum arabic may be employed, with the use of opium.

Peculiarities in the operation of Iodine.

It bears a general analogy to mercury in its application to tumors, enlargements of glandular bodies, thickenings of the tissues.

It is better adapted to chronic and long protracted cases.

It is often beneficial in these after mercury has failed, or when it cannot be persisted in.

It is inadmissible in Febrile and Inflammatory complaints with vascular excitement.

It exerts a less permanent influence over the secretions than mercury, and where they are defective, and are to be restored, it is less to be depended upon than mercury.

In some specific diseases in which mercury has ruled triumphant, much experience with the preparations of Iodine has evinced their greater safety and efficacy.

Its application to diseases—

In Bronchoccele.

In enlargements of the lymphatic glands.

To discuss Tubercles in the Lungs.

In Asthma.

In chronic Inflammation, induration, and enlargement of the Liver.

In enlargement of the spleen.

In derangements of the Uterine Secretions, as an Emmenagogue.

In Leucorrhœa, Gonorrhœa.

In diseases of the Fibrous system, Rheumatism, and of a Syphilitic character.

In the secondary and Tertiary Forms of Syphilis.

In Ulcerations of the skin.

In Cutaneous eruptions.

In Indolent Ulcers, with a sloughy surface.

In Ulcers occurring in scrofulous constitutions.

In Cancerous Ulcerations and in Lupus.

In Chilblains.

In Erysipelas.

As an Injection in Hydrocele.

Forms of administration—

1. In Pills, rubbed up with any tenacious substance.

Dose, half a grain night and morning.

2. In Tincture—

℞. Iodine, grs. xlviii.

Spirits of Wine, 3 i.

Dose, xxv. grs. for adults, two or three times a day, in sherry wine, or sugar and water.

3. In solution of Hydriodate of Potash, or more properly Iodide of Potassium.

℞. Iodide of Potassium, grs. xxxvi. to 3 i.

Distilled water, 3 i.—The dose as the Tincture.

4. In solution of the Induretted Hydriodate of Potash.

It is formed by adding Iodine, grs. x. to the above.

The dose vi. to x. m. three times a day.

During the administration of Iodine, care should be taken not to combine it with substances likely to decompose it, and not to give it when the stomach is loaded.

The use of the medicine should be occasionally suspended, on account of the supervention of unpleasant effects from it, and a dose of magnesia given on the day of its suspension, with a view of cleansing the *primæ viæ*.

Lugol's Solution—

Called also Ioduretted mineral water of Lugol, made by him of three different degrees of strength.

No. 1.	No. 2.	No. 3.
Iodine, gr. $\frac{3}{4}$.	Iodine, gr. 1.	Iodine, gr. $1\frac{1}{4}$.
Iodide of Pot., gr. $1\frac{1}{2}$.	Iodide of Pot., gr. 2.	Iodide of Pot., gr. $2\frac{1}{2}$.
Distilled water, $\frac{3}{4}$ viii.	Distilled water, $\frac{3}{4}$ viii.	Distilled water, $\frac{3}{4}$ viii.

When sweetened it is readily taken by children, but sugar should be added at the time of administration, as in the course of a few days it effects a chemical change in the solution.

From six to eight ounces may be taken daily by an adult.

Iodine Ointment—

Is made as follows :

Rx. Iodine, 3 i.
Lard, 3 i.

A scruple to be rubbed into the affected part.

Or,
Iodide of Potassium, 3 ss. to 3 i.
Lard, 3 i.

The size of a small nut to be rubbed on the affected part.

Iodine Liniment—

Prepared by adding the Tincture of Iodine to Soap Liniment, in the following proportions :

Rx. Tincture Iodine, 3 i.
Soap Liniment, 3 i.

To be rubbed over the tumor once or twice a day, in a small quantity.

This preparation has the advantage over the ointment, that evaporation is prevented by keeping it in a stopped phial.

When practicable, our method of using Iodine externally to tumors, buboes, &c., is to apply a blister to the part—and after two or three days, when the soreness of the blister is diminished, to direct a plaster of the Iodine Ointment to be applied. It occasions much smarting and irritation, and cannot be resorted to earlier, but the effects are highly beneficial.

Iodine Vapor—

Employed in this form in Inhalations into the lungs, in the treatment of Phthisis Pulmonalis, Chronic Bronchitis, united with Cicuta.

Iodine Baths—

Employed in this form for children and adults in the treatment of Scrofula.

Combinations of Iodine with mineral substances.

1. *Ioduret of Ammonia* has been employed in cases of Lepra and Psoriasis.

2. *Iodide of Barium* in similar cases, and in Elephantiasis.

3. *Iodide of Sulphur*, principally employed in the form of ointment in various diseases of the skin.

4. *Iodide of Arsenic* has been employed in Lepra, Impetigo, and diseases resembling Carcinoma.

5. *Iodide of Lead* has been used to reduce indolent tumors, especially enlargements of the cervical, axillary, and mesenteric glands. It has also been used externally for the purpose of subduing dropsy, and has been regarded as one of the most energetic and valuable of the preparations of Iodine.

6. *Proto-Iodide and Deutio-Iodide of Mercury*.—These preparations have been employed in all the cases in which Iodine is useful, and even where the other combinations have been unsuccessfully given. They are employed internally and externally, in the form of ointment, in diseases of the bones and their articulations, and in all cases of external scrofulous diseases.

Iodo-Hydrargyrate of Potassium—combining the properties of two very active articles, might be considered of great value in many diseases.

In *Dyspepsia*, diseases of the liver, enlargements of the spleen, dysmenorrhœa, glandular enlargements of a scrofulous character, dropsies, &c., it is better suited, and may be employed in all cases.

Iodide of Iron has been employed as a Tonic and resolvent, in cases of debility, accompanied with a relaxed condition of the solids.

Adulterations.

COD LIVER OIL.

THIS article may properly succeed to the consideration of Iodine, containing, as it does, with this principle, Chlorine and traces of Bromine.

This remedy, which has lately acquired reputation in the treatment of Pulmonary Consumption, and diseases of scrofulous habits, is obtained from the livers of the Codfish. Preparation.

It should be prescribed as free from taste and smell as can be procured, as it existed in the cells of the liver of the healthy fish, without contamination by any process of putrefaction, roasting, boiling, or the like.

Properties—Stimulant, alterative, antacid and nutrient, exerting an action upon the Lymphatic and capillary systems—increasing the functions of secretion and excretion, and improving nutrition.

It also replenishes the blood with an energetic and rich plasma, and promotes the absorption of scrofulous tumors.

Uses of the Cod Liver Oil—

In *Pulmonary Consumption*, according to the experience of Prof. Williams, of the London University, its use has been followed by

marked and unequivocal symptoms of improvement—the improvement varying from a temporary retardation of the progress of the disease, and mitigation of distressing symptoms, up to a more or less complete restoration to apparent health.

The stage of the disease in which decided and lasting improvement has occurred, is that usually termed the second stage.

But the most striking instances of the beneficial operation of the oil in Phthisis, is to be found in cases of the third stage. The relief, though decided, has not always been permanent, and the patients have again declined, and the disease terminated in death.

The results of various trials of the cod liver oil, even as a palliative, give it a rank far above any agent hitherto recommended.

To the medicinal properties of the oil must be added, that it is a highly nutrient material.

Another remarkable effect of the oil, in some cases of scrofulous disease, with extensive suppuration, is the speedy removal of the sweats, and other symptoms of hectic fever.

In its use, it rarely disturbs the stomach or bowels, or the functions of the liver.

The dose of the oil is from 3 i. to 3 ss., in some pleasant flavored liquid, as diluted orange wine, or the infusion of orange peel, or cherry bounce, and repeated two or three times a day.

In the instances which have fallen under our experience in the use of the oil, have been favorable to its action, relief having been afforded in some cases, and a removal of the cough, and other symptoms of the disease in others.

In *Chronic Coughs*, associated with much Hepatic derangement, dark complexion, heat of skin, with disordered alimentary functions, relief has been afforded in a very few days to all the symptoms, and the patient much improved.

In *Bronchitis*, similar beneficial effects have been derived—and in a case of *Asthma*, which fell under our notice, the most decided advantages were obtained, after many other remedies had failed.

Useful in *Tertiary Syphilis* in persons of strumous habits.

In *Chronic Rheumatism*, it has succeeded beyond the fondest anticipations.

In various *Cachectic* diseases dependent upon, or connected with Scrofula, it has been employed, as *Rachitis*—*Malacosteon*, caries, diseased joints, curvature of the spine, and general deformity of the osseous system.

In *Cutaneous* diseases, attention has been drawn to its use. The cases are *Tinea Favosa*, *Impetigo*, *Chronic Eczema*—used internally, and as a topical application.

In *Tinea Capitis*, that very obstinate disease of children, we have succeeded most happily in a case of several years continuance, by anointing the head with the oil twice a day, previously washing with soap and water—the internal use of the article being conjoined.

In *Chronic Inflammation* of the *Eyelids*, of much obstinacy, the external use of the oil has been highly beneficial.

DIVISION 10.

EXPECTORANTS.

Medicines which promote the secretion of the Bronchial passages.

THE organs communicating with the external air, are lined with a membrane of a thin and delicate structure, which pours out a mucous secretion. This fluid constantly lubricates the whole of its surface. It is limpid, mild, and nearly insipid, or rather saltish, and of little tenacity in the natural state. It is produced in so small a quantity in a state of health, that it seems to be dissolved by the air, and thus to pass off insensibly in expiration, or to be taken up by the absorbents. Under various circumstances it is poured out much more abundantly, and is altered in color and consistence; it is then expelled by the expiratory efforts which constitute cough. In its natural state the membrane is white, and but few marks of vessels can be seen upon it, but in disease, vessels are developed, and become perceptible, particularly in catarrhal affections, to which this membrane is very subject. The blood is then accumulated in the capillaries, and gives to the membrane a red color. The increased secretion which takes place is one of the terminations of inflammation by resolution, being a species of depletion which the vessels undergo, and the good effects of which are familiarly illustrated in the discharges from the nostrils, which follow inflammation of the schneiderian membrane. To promote this discharge from the lungs and trachea, is the object of this class of medicines. There is frequent occasion for such remedies, since the lungs and trachea are frequently irritated by mucous, which is either distressing from its quantity, or by its density and tenacity. It is not surprising then, that physicians in search of such remedies, administered many medicines with this intention. But it is not agreed whether any medicines possess a specific power of promoting the secretion or expectoration from the lungs. The principal object in attempting to facilitate the discharge of the contents of the bronchial vessels and cells, must consist in changing the *nature of those contents*, so as to render them *thinner*, less *tenacious*, and more *movable* than before. Whether we are possessed of any medicines capable of producing such a direct effect, may admit of a question. The generality of writers on the *Materia Medica*, and of physicians, speak of the utility of such medicines as they have termed *Attenuantia* for this purpose, but we may believe with Dr. Cullen, that their hypothesis on this subject is altogether erroneous, and that no such medicines exist. The only probable explanation of the action of an expectorant medicine appears to be, that by increasing the secretion from the exhalent arteries in the lungs, the mucous may be diluted and rendered less viscid, and the passages from the cells may be more fully moistened with a less tenacious fluid. We know that there is a constant and considerable exhalation of moisture from the lungs; and there are many reasons for believing that this is an excrementitious secretion, connected with the other excrementitious secretions, particularly with the perspira-

tion from the surface of the body. If, therefore, there are medicines disposed to pass by perspiration, it may be presumed that the same are disposed to pass by the exhalents of the lungs; and this exhalation may not only be increased, but the mucous produced by the follicles may also be poured out in a less viscid form, and consequently in a state to be more easily brought up by expectoration. Such is the most reasonable explanation of the action of this class of remedies. In its application much latitude is allowed, and a variety of articles of diversified characters are employed, according to the different states of the lungs, and the circumstances which promote an increase of their secretions, or their discharge. Where much inflammation of the membrane of the trachea and lungs exist, denoted by a dry and irritable cough, sense of fulness of the chest, dyspnoea, all of which denote an increased determination of fluids to this part—depleting remedies, by reducing action, and allowing secretion to take place, gives relief to many of these symptoms. This state of the living membrane is familiarly illustrated in a similar affection of the membrane of the nostrils, producing what is commonly called a cold in the head. Here the membrane is thickened by inflammation, and the passage of air through the nostrils impeded. The uneasy feelings thus produced are allayed, and speedily carried off by the discharge which takes place.

Expectoration is promoted by medicines which produce an action upon the stomach. This would seem to depend upon the production of nausea, exciting as it does an increase of the cutaneous secretions, and in like manner, an increase of the thinner secretion of the lungs. For nausea, by means of that singular consent between the stomach and many other parts, may either relax the spasm of the very minute secretory, and exhaling vessels of the lungs, or excite them to more vigorous action, when the mucous becomes at once more copious and healthy, and its expectoration more easy. The same effect is produced more completely by the operation of an emetic, which agitating the passage of air through the bronchia and its ramifications, expels much mucous which is collected in many diseases, and affords often great relief to the system.

Expectoration is promoted by various stimulating substances, which, by irritating the fauces and upper part of the larynx, and the system generally, excite the muscles of the thorax and diaphragm to convulsive contractions, which expelling the air of the lungs with some rapidity through the windpipe, mucous collected in it is discharged. Expectorants of this nature are best adapted to the chronic coughs of old people, when with the accumulation existing, there is a deficiency of muscular power to effect its expulsion.

Under the class of expectorants is included various mild, gummy and mucilaginous substances—such as spermacetti, gum arabic, flaxseed, liquorice, tragacanth, &c. This class is most useful when the mucous is too thin and acrid, and when there is a frequent and almost dry cough, with great irritation of the lungs and branches of the bronchia. They are, therefore, more properly demulcents, but since they allay irritation, and thereby allow the mucous to be collected and then expectorated, they may be comprehended under this division. There has

been some dispute about the action of these substances—some suppose that they produce their good effects by being received into the blood and conveyed to the lungs, while others suppose that it is only during deglutition, by lubricating the fauces and glottis, and by this means defending them from irritation, that relief follows their use. This at least is certain, that many of them so suddenly allay the cough, and remove the irritation, previously very troublesome, that it is utterly impossible that they could have reached the affected parts by the blood. But the cough being allayed, and the agitation of the lungs consequent upon it being for a while composed, the mucous, which was present in the lungs and trachea, is allowed to collect and become inspissated, and the strength of the patient being in the meantime somewhat restored, it is easily and copiously ejected with the first cough which occurs. Nothing more remarkably points out the connection of various parts of the system than the preceding circumstance; that an impression of a soothing nature being made upon the fauces and glottis, should be sufficient for a time to allay irritation of the pulmonary system, and lessen coughing. The fact is such, and in the cases to which allusion was made, the benefit afforded by these substances is very considerable.

There are yet other means of exciting expectoration. Blisters applied to the breast, side or back, not unfrequently manifestly promote expectoration. Their operation seems to consist in lessening inflammation, relaxing spasm, and promoting a more equal distribution of the fluids.

The steam of warm water inhaled into the lungs, by promoting the exhalation and secretion of mucous, which it also dilutes and attenuates, renders the expectoration more easy and prompt, and on many occasions answers valuable purposes.

PARTICULAR EXPECTORANTS.

In particularizing the articles of this class, we shall follow the order pursued in considering their general operation.

Upon depleting remedies we need not enlarge further, as from what has been said when upon this subject, their operation is understood, as is their great efficacy in restoring secretions which have been suspended.

Of those whose action is upon the stomach, and which operate by increasing the pulmonary secretions.

Ipecacuanha.—The natural and chemical history of this article having been fully treated of, and its application to diseases, we shall only observe, that in small or nauseating doses, it is often of considerable benefit as an expectorant. For this purpose it is employed in catarrhal and pulmonic disorders, and in different states of these complaints, it appears to exert a decided action in promoting expectoration, particularly where the mucous membrane is dry and inflamed. It is seldom employed

alone, since more is gained by the co-operation of these remedies, than can be obtained by the exhibition of any of them separately.

The remarks which have been made upon this article, may be applied with equal propriety to the Tartarized Antimony, given either in the form of powder or vinous solution, as in the following formula, for Pertussis or Hooping-cough :

R \acute{e} . Salt of Tartar,	℥i.
Water,	℥ vi. to ℥ viii.
Cochineal,	grs. x.
Antimonial, or Ipecac. Wine,	℥ ii.
Paregoric,	℥ ii. m.

To be made palatable by the addition of sugar.

Dose, ℥ i. to ℥ ii., several times a day. To infants, according to age.

Scilla Maritima.—To the properties of this article which have been enumerated, must be added its expectorant. It is possessed of these in a considerable degree, and is perhaps more frequently resorted to than any other of this class. In the diseases of children connected with accumulation of mucous in the bronchial passages, and in their catarrhal affections, few articles are more deserving of attention, since to its action in stimulating the mucous follicles, and exciting more copious excretion from the lungs, by a small augmentation of its dose, emesis speedily follows, and with it the expulsion of the viscid matter which had oppressed the pulmonary system. In asthmatic affections, dyspnoea arising from similar causes, it is much employed, and is held in general estimation. In short, in all the pulmonic affections, after action has been reduced, it is found to be a very valuable medicine. It is rendered more useful when combined with the nitrate of potash, tartarized antimony, or ipecacuanha, and in asthma, or dyspnoea without fever, combined with ammoniacum, it is perhaps the best remedy we can employ.

In Hydrothorax occurring in persons of an advanced age, especially when there is chronic catarrh, asthma, or cough, and the bronchial tubes are loaded with large quantities of viscid phlegm, expectorated with much difficulty, squills will be found highly beneficial, both as an expectorant, a diuretic, and by promoting absorption. In such cases, it may be given in very full doses, so as to keep up nausea, which is conducive, in no small degree, towards a free excretion from the bronchial vessels.

In Pertussis it is very useful. Of the many formula recommended for the treatment of this disease, the following has in our hands afforded the most relief.

Syrup of Squills,
Ipecacuanha Wine,
Paregoric, each equal parts.

Of this a tea-spoonful is a dose, taken five or six times a day.

The preparation of squills used are, the oxymel, vinegar, and tincture. The two former are generally preferred, because the other ingredients with which the squill is combined, seems to add to its virtues. The tincture is, however, recommended by many.

The following forms a very useful pectoral mixture in most cases:

℞. Syrup of Squills,	3 ss.
Honey,	3 i.
Elixir Paregoric,	3 ii.
Antimonial Wine,	3 iii.
Laudanum,	3 i.
Water,	3 iv.

A desert-spoonful to be taken with a little honey, every two or three hours, or oftener if required.

Or,

℞. Syrup of Squills,	3 ii.
Spts. Ether Nitros,	3 iss.
Camph. Tinet. of Opium,	3 ss.
Comp. Syrup of Squills,	3 ii. mix.

For an adult, 3 ss. to 3 i., four or five times a day.

Syrupus Scillæ Compositus—Hive Syrup.—A combination of Seneka Snake-Root, Squills, Tartarized Antimony, boiled in water and made into a syrup. Thus combined, a preparation has been made by Dr. Coxe, of Philadelphia, and introduced in the American Dispensatory as an officinal article. The efficacy of these articles is much improved by their union, and in cases of eroup, and others, where expectorants are required, in doses so regulated, as to produce an emetic or expectorant operation. Very great benefit has been afforded in many cases, and for these purposes, the preparation is well deserving your attention.

For the manner of preparing this medicine, we refer you to Coxe's Dispensatory.

OF EXPECTORANTS WHICH OPERATE AS STIMULANTS.

FAMILY Umbelliferae—Dorema Ammoniacum—Gum Ammoniac.—Is a conerete, gummy, resinous juice, which oozes from a plant of the umbelliferous kind, growing in Egypt, Turkey, and the East Indies. It is found in the shops in masses, formed of drops or tears, which are white within, yellowish without, easily fusible, somewhat bitter and nauseous, and of a sharp taste and smell. The white drops, or tears, are observed to change to a yellowish or brownish color, on being exposed for some time to the air. It is often met with in the shops mixed with much foreign matter, as wood, small stones, and sand. From them it is separated by softening or dissolving it in a little boiling water, pressing it while hot through a strainer, and then inspissating it to its former consistence. For internal use, the larger and finer tears unpurified, are preferred to the common strained gum.

The virtues of Ammoniac have been considered more various than experience justifies. It has been commended for its anti-spasmodic and

deobstruent properties, neither of which does it possess in any degree. As a stimulant expectorant it is better known and appreciated, and it is only in this point of view that it can be considered entitled to our attention.

In various Pulmonary affections, when the lungs are oppressed by viscid phlegm, in chronic catarrhs, in asthma, particularly in the pituitary or humid, in pneumonia after action has been reduced, and in peripneumonia notha, it is often of essential service in promoting expectoration and relieving respiration. In these diseases its powers are very considerable, and its efficacy such that it deserves the first place in this division. Triturated with water it forms a milky liquor called *lae ammoniac*, and in this state is more active than when administered in pills. The following formula is the usual mode of administering it:

℞. *Lae Ammoniacae*,
 Cinnamon Water, each 3 ii.
 Syrup of Squills, 3 ss.
 Elixir Paregoric, 3 ii.—ft. *mistura*.

The dose is a large table-spoonful, which is to be repeated until relief is obtained.

Dissolved in a diluted solution of nitric acid, it is employed in cases where large accumulations of purulent or viscid matter exists, with feeble and difficult expectoration. The formula is as follows:

℞. Nitric Acid, 3 ii.
 Water, 3 viii.

This to be poured upon Gum Ammoniac 3 ii., and rubbed down until a solution is made—of this a small quantity is taken as often as is necessary, mixed with any mucilaginous fluid.

Polygala Seneka.—Is also a very useful stimulating expectorant. It has an unpleasant and somewhat aerid taste. After chewing, it leaves a sensation of acrimony in the mouth, and still more in the fauces, if it has been swallowed. It is probably owing to this particular irritation of the Seneka in the fauces, the sensation of which is compared to a burning, that the discharge of mucous which takes place, is attributable—since during its existence much is brought up by hawking. The powers of Seneka as an expectorant, are as well established as those of any other medicine. It has for this purpose been employed in several affections, and the reputation it acquired has been well sustained in subsequent trials with it. Introduced as it had been upwards of eighty years since in the treatment of pneumonia, it is still employed with advantage in the pulmonary affections, and most practitioners are agreed upon the decidedly good effects often following its use. The stage of the disease to which it is best adapted is more clearly defined, and it is now considered that it cannot be employed to the exclusion of other active remedies. When these, therefore, have been pursued to a proper extent, and the patient continues oppressed with a dry cough, or difficult expectoration, a decoction of this article may be resorted to with much advantage. It is also useful in croup as a secondary remedy, and when employed, the decoction should be much stronger than is usually given. The mode of preparing it is as follows:

℞. Seneka Snake-Root, coarsely powdered, ℥ss., boil it in ℥viii. of water to ℥iv.—of this a tea-spoonful is to be given every half hour or hour, as the urgency of the symptoms require.

Of this strength it is decidedly expectorant, and it may also excite emesis. The decoction is the best form of administering the Seneka, though the tincture is often useful, in combination with other articles. In ordinary cases, the strength above directed is greater than necessary—℥ss. to a pint and a half of water, boiled down to a pint, is sufficient—To this such other additions may be made, according to the indications, or the partialities of the physician.

The dose is ℥ss. to ℥i., until relief is obtained.

Lobelia Inflata.—See Emetics.

Family *Liliaceæ*—*Allium Sativum*—*Garlic*.—The virtues of garlic are various. The whole of the plant possesses similar properties, but the root, which has a strong pungent odor, and a very acrid taste, is the only part employed in medicine. Of the many purposes for which it is recommended, we shall only speak of its Expectorant, which in common with other articles of the class *Aliaceæ*, it possesses in a considerable degree. Its utility, in this respect, in the several forms of Asthma and other affections, unattended with inflammation, has been long noticed. Thus Dioscorides mentions its use in moderate coughs. Celsus employed it mixed with honey in these complaints, and Rosenstein recommends it to be boiled in milk, and a pint to be taken night and morning. It is, however, not so much in repute among professional men as among those who are unprofessional, with whom, made into syrup with honey, it is much employed in Catarrhal affections of long continuance, in Tussis Senilis, and in other cases, and very frequently with advantage. We have never had occasion to administer it, but have known of its employment in several cases with good effects.

A *Watery Solution of Assafoetida* has been recommended in pectoral affections, for its expectorant properties, and it has been much used in Pertussis, chronic coughs, &c. Its good effects rather depend upon its anti-spasmodic properties, and it is advantageously employed in all those affections of the lungs which are attended with spasm. The prescription is as follows :

℞. Gum Assafoetida, ℥ss.
Water, ℥iv.

The water is rubbed with the gum until a solution is made. To this is added Tincture Tolut, ℥ss.
Laudanum, gtt. xxx. or xl.

The dose is a tea-spoonful to a child every two hours, and ℥ss. to an adult.

There are several other articles that might be mentioned under this head, but they are either so uncertain, or so seldom employed, that their enumeration is unnecessary.

Of the properties attributed to Balsams, none are more ancient and commonly prevalent than those of healing or vulnerary. This idea appears to have arisen from the observation of their use when externally applied to a recent wound. If a wound is made on any part of the body with a clean cutting instrument, and the parts be brought together, and bound up with a rag dipped in any balsam, and left undisturbed for several days, it is a matter of common remark, that the wound will generally heal without any suppuration, by simple union of the divided parts. The same effects would be produced by any other substance similarly employed. Without regarding the effects which followed this approximation of parts, and the exclusion of external air, they were supposed to be possessed of healing powers in a peculiar degree. From their utility thus applied externally, their use was extended to internal affections. But scarcely a single circumstance which recommends their external application can apply to internal injuries or diseases. Their good effects as external remedies, depend upon the degree of topical stimulus, and probably the exclusion of the external air, and hence the value which is set upon balsams as internal remedies is entirely lost. A languid, indolent ulcer of the kidney might, perhaps, be assisted by local stimulating remedies, but when the remedy must enter the stomach, and pervade all the vessels, be mixed with and diluted by the common circulating fluid, the remedy is no longer local, and the irritation which it produces is either counteracted during the circulation, or is equally diffused over the whole system. Balsams, therefore, are no longer viewed with that partiality which the older physicians entertained for them, and repeated experience has shown them to be sometimes absolutely useless, and often positively injurious in internal affections of different parts for which they have long been celebrated. Used with caution, they may be beneficial in several diseases.

Family *Leguminosæ*—*Myrospermum Peruiferum et Toluiferum*—*Balsams of Peru and Tolu*.—From recent discoveries, it is ascertained that these balsams are obtained from the same genus, and are similar in their properties. The tree from which the balsam is derived grows in South America. It is procured by making incisions in the bark, from which it exudes in considerable abundance during the hot season. The balsam is of a yellowish brown color, transparent, in consistence thick and tenacious. By age, it grows so hard and brittle that it may be rubbed into a powder between the finger and thumb. Its smell is extremely fragrant, somewhat resembling that of lemons, its taste is warm and sweetish, and on being chewed it adheres to the teeth. In its composition it consists of an essential oil, a peculiar resin, and benzoic acid. It is this last principle which characterizes the balsams. In common with the other balsams, it has been much celebrated for its expectorant properties. It is less heating and stimulating, and may, therefore, be employed with more safety in pectoral affections than others. The cases to which it is adapted are similar to those to which this division has been considered best suited—only it is not often resorted to until vascular action has been much reduced, or where but little excitement exists. It is a useful addition to other expectorants, to which it often

imparts vigor, and is, therefore, principally employed in combination. It may be administered alone, suspended in water by means of mucilage or the yolk of an egg.

With it is formed the medicine sold in the shops, and known as Hill's Balsam of Honey. The formula is to be seen in Paris' Pharmacologia. We have found it very useful in chronic coughs, and the pectoral affections of old people.

Balsam Copaiva.—See Diuretics.

Having considered the manner in which expectoration is excited by medicines which exert their action upon the stomach, and by their stimulant impressions—we proceed to consider another division, comprehending those substances, which by sheathing the upper part of the trachea with a bland and viscid fluid, allay that irritation which excites coughing, and by allowing the mucous to be collected, thus appear to promote expectoration. This division will comprehend the mild gums and mucilaginous articles, such as gum arabic, tragacanth, sugar, linseed, liquorice, tussilago, and the like. They are most useful when the mucous is of a thin and acrid quality, when there is a frequent and dry cough, with great irritation of the lungs and bronchiæ. There is some dispute about the action of these medicines. It had generally been considered by physicians, until the time of Dr. Cullen, that these substances act upon the lungs through the medium of the circulation. Thus the gum arabic which is in very common use, was proved to extend its soothing qualities to the bronchiæ, and there to allay that irritation which excites coughing. It is, however, more probable that the articles of this class produce their good effects only during deglutition, and that by besmearing the fauces and glottis, they are defended from the various irritations which in their irritable state would excite coughing. In this condition of the membrane, deprived as it often is of the mucous which lines it, the air itself is often an irritant. That it is by supplying the absence of this natural covering, that these substances allay coughing, and remove the irritation previously so troublesome, is proved by the quickness with which the effect follows, and that in so short a period of time, as to render it impossible that the smallest quantity could have reached the affected parts through the circulation. The cough therefore being allayed, and the agitation of the lungs consequent upon it being composed, the mucous which was present in the lungs becomes more abundant and inspissated, and the strength of the patient being in the meantime somewhat restored, it is easily and copiously ejected with the first slight cough which occurs. We now proceed to their particular consideration.

Family *Leguminosæ*—*Glycyrrhiza Glabra*—*Liquorice*.—This plant is a native of the South of Europe, and is also cultivated in Great Britain. The root is the part used in medicine, and it contains much saccharine matter joined with some proportion of mucilage. When boiled for a short time in water, it gives out nearly all its sweetness—the decoction then strained and inspissated with a gentle heat, affords the ex-

tract so commonly met with in our shops. The uses of this article are so well known, that it is almost unnecessary to enter upon the description. It is much employed in catarrhal and other pulmonic affections, in coughs, hoarseness, &c., and from its bland and emollient properties, is well adapted to all these cases. It is not often employed alone, but combined with a variety of other articles for greater convenience and efficacy. The following formula, constituting what is called the Brown mixture, is very commonly employed, and it is a preparation which is often beneficial.

℞. Extract of Liquorice,
 Gum Arabic, each 3 ss.
 Hot water, 3 viii.—simmer until dissolved.
 Antimonial Wine, 3 iii.
 Laudanum, xl. drops.— 3 ss. to be taken every two or three hours.

In this formula the anodyne co-operates with the mucilaginous articles in allaying irritation, while the determination to the surface excited by the antimonial preparation, completes the intentions to be fulfilled in pectoral affections, and thus furnishes us with a very valuable mixture in the secondary stages of these diseases. In milder cases the same articles may be given in the form of lozenges, prepared in the following manner:

℞. Powdered Gum Arabic,
 Powdered Extract of Liquorice,
 White Sugar, each 3 ii.
 Powdered Opium, grs. vi.
 Oil of Anniseed, gtt. iv.

To be divided into sixty parts.

One of these may be dissolved in the mouth three or four times a day, or more frequently.

This is the formula of Dr. Wistar, and which is very useful and convenient.

Or,

℞. Sugar,
 Powdered Gum Arabic,
 Extract of Liquorice, each 3 iv.
 Powdered Opium, 3 iss.
 Powdered Ipecac., 3 iss.
 Tinct. of Tolut, 3 i.

Mix and make into a mass. Divide into lozenges of six grains each.

Powdered Liquorice Root is much employed in the composition of pills, and for disguising the taste of unpalatable medicines, which it does more effectually than any other substance.

Gummi Arabicum—Acacia vera Succus.—This valuable article is a concrete mucilage which exudes from the *Mimosa Nilotica*, or *Acacia vera*, a tree that grows abundantly on the sandy soil of Egypt and Arabia, on the rivers Senegal and Niger, near the Cape of Good Hope, and other parts of Africa. The gum exudes in a liquid state from the bark of the trunk, and branches of the tree, in a similar manner to the gum

which is often produced upon the cherry tree, &c. of this country, and by exposure to the air it soon acquires solidity and hardness. The common appearance of this gum is so well known as not to require any description of it; the various figures which it assumes seem to depend upon a variety of accidental circumstances attending its transudation and concretion. That which is of a pale yellowish color is most esteemed; those pieces which are of a brownish or reddish hue are found to be less pure, and are said to be produced from a different species of *Mimosa*.

Gum Arabic is probably the most valuable of all the gums and mucilaginous substances, in coughs, hoarseness, and other catarrhal affections, for the purpose of diminishing irritation, and supplying the absence of the natural mucous. On this account it is employed to allay the tickling sensation in the fauces, which so often excites coughing. It is, therefore, much resorted to in the formation of pectoral mixtures, and is a very useful adjuvant. It is combined, as I have already mentioned, with several articles.

Gum Arabic is employed to suspend in water a number of substances, which would not otherwise be kept equally diffused in this fluid. It is also used in rendering miscible with water the balsams, resins, fixed oils, and similar substances, whereby they may be very commodiously taken in a liquid form. This article is considerably nutritious—in the countries where it is native it forms an important article of food, either by itself or mixed with milk, rice, &c. Hasselquist relates an instance of the travellers of a large caravan, who had consumed all their provisions in the middle of their journey, through the deserts of Africa, preserving themselves from famine by gum arabic, which they were carrying as merchandize.

Gum Tragacanth.—This is so nearly allied to Gum Arabic in its properties, that a particular description is unnecessary.

Family *Lineacea*—*Semen Lini*—*Flaxseed*.—Is the product of the *Linum Usitatissimum*, a plant which is a native of Great Britain, but is cultivated in many parts of Europe and this country. It is a plant of great utility for purposes in the arts to which it is subservient. The seeds which it furnishes have an unctuous sweetish taste, but no remarkable smell. On expression they afford a large quantity of oil—boiled in water they yield much mucilage—the mucilage residing chiefly in the cuticle of the seeds.

Infusions and decoctions of these seeds, like other vegetable mucilages, are used in coughs, hoarseness, and pulmonary affections generally. They are of considerable benefit in many of these cases, and when sweetened with honey, and acidulated with lime juice or vinegar, are not very unpalatable. They may be drunk freely, and are useful in allaying irritation.

Besides the articles we have mentioned, there are several others which are much employed for the purposes already detailed, as almonds, spermaceti, mallows, the seeds of quinces, slippery elm, &c., which, as they possess only mucilaginous properties, need not be particularized further.

INHALATIONS.

HITHERTO I have been considering the articles which have been employed, and are, doubtless, of great utility in allaying irritation—in lessening the inordinate secretion from the lining membrane of the trachea and bronchiæ, and promoting its expectoration. Under the head of Inhalation, we advance a step further, and will bring to your notice remedial measures, which will change the morbid action existing, and substitute a new and a healthier one, will promote the healing of ulceration, provided it has not extended into the parenchyma of the lungs—and by attacking the sources from which the bronchial discharges have issued, diminish and finally prevent them. The great utility of applications in promoting the curative action of ulcers situated on the external parts of the body, has frequently been noticed, and by a parity of reasoning we would be led to suppose, that if they could be made to the surface of the lungs, in a manner adapted to their greater degree of irritability, similar good effects would result. Every day's experience convinces us that the improvement which takes place in the constitution of those laboring under pectoral complaints, by changes of climate, by long voyages, arise not more from the changes which are made in the circulation, than by the passages to the lungs being also stimulated, by new actions being excited, through their whole extent, and ulcerations healed which had long existed. From these circumstances, we may suppose that the dissemination of stimulating effluvia in the apartments of those laboring under pulmonary complaints, when the matter expectorated indicates that the ulcers evince a depraved condition, would be highly serviceable, not only to cleanse the sores, promote the healing action of their surfaces, and prevent or diminish acrid secretions—but that they would facilitate the expectoration of such matters as lodged in the bronchiæ, render the breathing oppressed and difficult.

The great object in the treatment of every disease is to change the existing action, to direct our remedies in such a manner that by their strong impress upon the system, their operation may be substituted for the diseased, and health be finally restored. This object can often only be effected by cautious, steady and persevering exertions, and in no diseases are these directions more necessary than in those of the lungs. The period in the disease for the employment of Inhalations, will be after the inflammatory symptoms have passed off, and the disease begins to assume the chronic form. By such means, strenuously and judiciously maintained, the most beneficial effects have resulted in chronic affections of the breast.

Inhalations of the mildest character consist of water in the state of vapor, either in its simple state, or containing other substances with a view to a more stimulating action. In many cases these means are often of great benefit in promoting difficult expectoration, by relaxing the bronchial vessels, and occasioning thereby a more copious secretion, by which the viscid contents of the lungs are altered, and their libera-

tion more readily effected. The vapor of water, or vinegar and water, inhaled through the spout of a tea-pot, or a funnel inverted over a bowl, or Mudge's inhaler, (for a good model of one, see *Edinburgh Medical or Surgical Journal*, No. 75,) may be usefully employed in cases where these objects are desired, and the relief afforded is often very considerable.

The vapor of spirits has been much used in chronic ulcerations of the lungs with great advantage.

The Tincture of Digitalis, united with the vapor of water, has been inhaled in the lungs either by Mudge's inhaler, or by the use of sponge.

Æther in which ciuta is dissolved has been long employed, where a stimulating expectorant and anti-spasmodic is required. Dr. Chapman speaks of the utility of this remedy with some confidence in dyspnoea and in pulmonary complaints. Of its utility I can say nothing, having neither seen nor known of its employment.

The fumes of terebinthinate substances have been employed in catarrhal affections, and in diseases of the chest more extensively, and from the various reports upon the subject, with effects highly salutary. From their less stimulating properties, they may be employed more frequently, and the occasions in which they may be resorted to, are more common than is supposed.

In conjunction with other remedies, the fumes of rosin are often highly beneficial in the catarrhal affections of children. They are often received with pleasure by the infant, and seem to produce an immediate improvement of the breathing. If the effect is not salutary, the patient may easily be removed beyond the influence of the fumes. The manner of administering the remedy is simply to fill a room with the smoke of rosin, and allow the patient to remain in it as long as is necessary.

The fumes of tar have also been employed in the same cases, and in Pertussis. In Pulmonary Consumption this article has been employed with success in Petersburg, Russia, and it is confidently stated that patients have been restored after their lives had been despaired of by the most eminent physicians of that kingdom. Sir Arthur Clarke speaks of its use in three cases of consumption, in St. George's House of Recovery in Dublin, and he states that from the experience he has had, the tar fumigation renders the cough less troublesome, and produces very salutary effects on the pulmonary system. The manner in which the fumigation is directed to be conducted, is to put the tar in an open vessel over a lamp or hot iron, so as to produce a slow volatilization, until the air of a chamber is well impregnated. In this atmosphere the patient may remain one or two hours together, two or three times a day. In a similar manner it has been employed in Pertussis, and its effects are spoken of in very high terms.

The inhalation of the effluvia from raw muscovado sugar, has been recommended by Dr. Chisolm in cases of Phthisis. He has known it produce a wonderfully soothing effect, which has in some instances become permanent. In the West Indies he recommends lodging the pa-

tient near a boiling house of a sugar plantation, or where this is not practicable, a small barrel, or even a basin, filled with the coarsest or dampest muscovado sugar, may be placed in the corner of a room occupied by the patient. In changing the climate, a sugar laden ship should always be preferred.

Besides this mode of applying stimulating substances to the lungs, it has been proposed, and even practiced, to introduce into the lungs various articles in the form of powder. Dr. Darwin invented a box for the application of powders to the surface of the lungs, for the cure of ulcers, &c., and the practice has lately been revived by a practitioner from New-England. The mode, however, of impregnating vapor with medicinal herbs has many advantages, and this more especially, since there are few substances, the active principles of which may not be dissolved and applied to the lungs through the medium of vapor.

Such are the remedies which have been commonly resorted to for the purposes of inhalation. It is a practice but little resorted to at present, much less than it deserves, and I hope, that with the views which have been given of its operation, it may excite more general attention.

ANÆSTHETIC AGENTS.

Derived from the Greek of a primitive, and Aisthanomai I feel.

Ætherization.—The following is a short account of the history of this discovery.

A knowledge of the effects of *Ætherization* does not appear to have been made known by the exertions of a single individual, but to have been brought into existence by the joint operations and discoveries of many. It has been well known, that various gases and factitious airs could be introduced into the lungs—and, at one time, this method of treating diseases was much in vogue—Dr. Beddoes having, in 1779, been chiefly instrumental in bringing this practice into notice.

In 1795 and 1796, Dr. Thornton recommended the inhalation of *Æther*, and it was employed by a patient laboring under pectoral catarrh, with relief from the oppression, pain, &c. in the chest—also employed in other cases, as in a painful inflammatory affection of the mamma.

In none of these cases was it carried to the extent of the abolition of pain.

Sir H. Davy seems to have contemplated such a result by medicamentous inhalation, and to have put it to the test of experiment. He employed the nitrous oxyd gas for this purpose. He also had recourse to it for the removal of headache, and for the relief of other diseases, as spasmodic asthma, catarrh, dyspnoea, whooping-cough; also, to correct the unpleasant sensations caused by the inhalation of chlorine gas.

In 1841 and 1842, Dr. C. T. Jackson employed *æther* to obtain re-

lief from the above accident, and to produce a peculiar sleep, or unconsciousness, but a state of complete *insensibility* was considered one of great danger, and it had been known to produce fatal results. Dr. Jackson also suggested its use for the slighter, and instantaneous operations of the teeth.

Dr. H. Wells next claims the discovery. He had used the nitrous oxyd gas in the extraction of teeth, but his claims, as a discoverer, must yield to that of Sir H. Davy, who had suggested the use of this agent for this very purpose some years previous. His public experiments with the use of æther seemed to have been a failure.

Dr. W. T. Morton, of Boston, must next be mentioned. He had been a student of Dr. Jackson, and a partner of Dr. Wells. He became acquainted with the views of Jackson, and the experiments of Wells. He finds a patient who consents to permit him to use the æther, and extracts a tooth without pain. Though Dr. Jackson's views were favorable to the expediency and safety of æther, he does not appear to have had his countenance or support.

Dr. Morton follows up his first experiment, and the great truth is at last made manifest, that æther may be employed with safety, so as to produce insensibility during all surgical operations.

The world is indebted to Dr. Morton for this discovery, and in its progressive steps is indebted to Dr. Jackson's scientific knowledge and sound advice—and, but for it, it would not have been made at the present time.

Thus it would appear, that Dr. Jackson suggested the use of æther, while Dr. Morton demonstrated by actual experiment the existence of this wonderful property.

Since the discovery has been made, anæsthetic agents have been used extensively in surgical operations and midwifery practice—also in several morbid conditions of the nervous system.

Administration of the Æther.—The horizontal posture is preferred, being most favorable to ætherization, and it is most easily applied. When first administered, the tube and bottle were employed, but the sponge will be found most convenient.

It requires less effort to inhale it, and the atmospheric air introduced with the æther, removes the danger of asphyxia. The sponge should be of an excavated form, in order to accommodate the projection of the nose.

The sponge previously moist, is saturated with æther of the purest quality, and applied to the nasal cavities.

The volatility, and combustibility of æther, should be kept in mind when it is employed by candle light.

The quantity of æther employed has usually been about two ounces, but we are to be more guided by the effects upon the patient, than by the quantity consumed.

The time required is from two to five minutes, though it may be prolonged in accordance with the length of the operation, and the difficulty of accomplishing the ætherization.

In important operations there is advantage in preliminary trials, to

test the susceptibility of the patient, and to instruct him in the manner of its application.

The existence of ætherization is usually recognized by the closure of the eye-lids, by the non response to questions, and by muscular relaxation.

The pulse and respiration should be carefully watched, that when they fail, the process may be discontinued, and the face of the patient sponged with cold water—artificial respiration practised if necessary. The stimulus of ammonia may also be employed—oxygen gas thrown into the lungs.

It should be administered fasting.

Uses of *Æther*—Dr. Warren, of Boston, is entitled to the distinction of having been the first to perform a surgical operation on a patient rendered insensible to pain by the inhalation of the vapor of æther. He has continued to use it in his practice to the present time, and furnishes the fruits of his experience with it in two hundred cases, in a small volume which he has published.

For his conclusions in the use of the article, refer to volume.

The point requiring most skill and care, is to know when the ætherization has been carried far enough.

Effects produced by the inhalation.

The first symptom noticed, is a short dry cough, which impels the patient to remove the sponge—with a little persuasion, he allows it to be replaced—he inspires the vaporous draught until he becomes insensible.

The respiration is often audible, and sometimes apoplectic, afterwards feeble, and almost imperceptible.

The pulsations of the heart are often hard and vibratory.

The muscular apparatus is excited at an early period.

The conjunctiva of the eye is injected with blood.

The brain is sometimes singularly affected, and the most curious changes produced in the sensitive and intellectual functions. In some cases the sense of feeling is suspended, while the intellect exists.

The principal symptoms disappear in half an hour—when an unfavorable influence is excited, it is exhibited in the form of asphyxia or convulsions.

The treatment consists in the suspension of the æther, and the free affusion of cold water.

Abuses in the use of *Æther*—

For the purpose of destroying life—for the accomplishment of a criminal purpose.

The following are the occasions in which ætherization may be resorted to :

In Dentistry,	Tetanus,
Amputations,	Neuralgia,
Extirpations,	Strictures,
Fractures,	Lithotomy,
Operations on the Bones,	Cautery,
Dislocations,	Dysmenorrhœa,
Strangulated Hernia,	Midwifery.

CHLOROFORM—TERCHLORIDE OF FORMYL.

It was discovered in 1832, by Soubreiran and by Liebig.

Its composition and relation to other bodies, investigated by Dumas and Flourens, in 1842 and 1847.

The same year, Dr. Simpson discovered its most remarkable property as an anæsthetic agent, and applied it to various diseases.

Chemical History—Refer to the Professor of Chemistry.

Properties—

It is a transparent, colorless fluid, of considerable density, of a peculiar, fragrant, æthereal odor, and a sweetish taste—soluble in alcohol and æther.

It is often adulterated with alcohol.

Its medicinal properties are various—in large doses, a narcotic poison—in smaller, a stimulant, anti-spasmodic, anodyne, and anæsthetic.

It is not much employed internally as a medicinal agent.

When *inhaled* in doses of xx. to xxx. m. to 3i., dropped on a handkerchief, it occasions—

Whizzing and pulsations in the head—a change in the apparent color of objects—pleasurable visions and ideas—loss of consciousness, or semi conscious state—soft sleep, &c.

Or,

Tendency to laughter and jocularity, or incoherent talking, or boisterous turbulence—resembling in its effects those of nitrous oxyd gas.

In large doses, coma is rapidly produced, with relaxation of the muscles, slow and stertorous breathing, with total insensibility.

Sometimes convulsive twitches about the mouth, frothing at the mouth, &c.

Insensibility may begin in fifteen seconds—it is seldom postponed beyond two minutes. If too large a quantity is inhaled, the lips become blanched, spattering at the mouth as one in Epilepsy, and the person in a minute has ceased to breathe.

To obviate these dangers—

It should be administered in the horizontal posture, and upon an empty stomach. Whenever the stomach is not in a state of emptiness, it produces anxiety and agitation.

The uses of Chloroform are numerous.

It has been substituted for the inhalation of Æther, to induce insensibility during surgical operations.

Some advantages over æther.

It is more rapid in its action, and more certain.

It acts in a much less dose.

It requires no nicer apparatus than a handkerchief.

It can be employed in the cases of children, in whom æther often can scarcely be made available.

Where there is want of susceptibility to the narcotic action, after trying the use of æther, the more powerful impressions of chloroform have been exerted with good effect.

It has been employed to subdue the suffering of child bearing.

It produces no injurious effects upon the female.

It does not interfere with delivery.

Under its influence the Uterus and abdominal muscles continue to contract.

The child is not affected by its use.

It may usefully be resorted to in cases requiring the use of instruments, or where it is necessary to turn the child.

Without being used to the extent of insensibility, in small doses it sustains the energies of the patient, and removes the despondency so often felt in these cases.

But though you have been informed that *Æther* and Chloroform are valuable anæsthetic agents, it is proper to state, that they are narcotic poisons of great power and rapid action. In small repeated doses they produce agreeable exhilaration, and pleasing hallucinations. By merely inhaling chloroform from a bottle, the most delightful thrill over the whole frame is produced. They are carried by the blood into every capillary, and excite simultaneously every part of the frame.

Chloroform has been employed in all the cases in which *Æther* has been recommended, and by some preferred.

It should be used with caution, as death has in some instances been produced by it, and several cases will be found recorded in the journals. In some instances it seems to have been produced by the too free use of the article—in others, a peculiarity of the system has existed unfavorable to its employment.

In some cases the cause of death would seem to be congestion of the lungs—in others, without any obvious cause. It leaves us only the nervous system, independent of vascular action, or congestion, as the seat of the sudden change produced by the rapid passage of the narcotic principle to the great nervous centres.

The fatal phenomena occur suddenly.

In four cases death took place within a minute.

In two cases in two minutes.

Thus it would appear that the fatal issue is not a consequence of the quantity inhaled, nor yet of the time, but rather the instantaneous violence of the impression.

To the diseases mentioned in which *æther* is used, in all of which chloroform may be employed, we may add—Typhus Fever, Mania, Delirium Tremens, Asthma, Cholera, Obstinate Costiveness, and Tetanus.

Objections to Chloroform—the facility with which it may be abused.

The highly concentrated state of the Toxic principle, the convenience with which the substance can be transported, the absence of the penetrating and diffusive propriety of Sulphuric *Æther*, favor its use in an undiscoverable manner.

Persons have resorted to it for the purpose of obtaining the pleasure of a temporary delirium. The number of persons who resort to it in this manner is probably very considerable, and leads to the belief that those who employ it in secrecy must be very great. The habit of taking it may be thus formed, which may lead to pernicious consequences.

The same objection may be made to æther, but in a less degree. Its volatility reveals its use. The quantity required is also such as to make it more difficult to conceal its employment.

CHLORIC ÆTHER.

IN consequence of the accidents with the use of Chloroform, it has been recommended to be used diluted as in the above form.

Chloric Æther is the product of the distillation of Alcohol and Chloride of Lime. It is Chloroform diluted with Alcohol. It has been employed without any unpleasant consequences at the time or afterwards. It has advantages over Sulphuric Æther and Chloroform—over Æther, in being less irritating to the lungs, the inhalation being more agreeable—Never produces headache in the operator and bystanders—Its narcotic powers is equal to Æther.

It is more safe than Chloroform.

DIVISION 11.

EPISPASTICS.

THE idea of applying to the surface of the body a substance, which, by producing a considerable irritation, was calculated either to displace or equalize in any manner the force of morbid excitement, embraces one of the most important pathological principles in the practice of our profession. With whom it originated is not very accurately known, but the honor is most probably due to Hippocrates, since the idea is frequently expressed in many parts of his works. When applied to practice, it furnishes us with resources the most extensive in Therapeutics, and presents us with a very favorable specimen of the state of medicine in the days of ancient Greece. The substances employed by the Greek physicians, as Epispastics, were derived from acrid and irritating vegetables, from the actual cautery, and other means equally severe and pungent. It was not until the science was more advanced, that the more common practice, that of employing Cantharides, came into vogue—their introduction into the *Materia Medica* being attributed to Aretæus, a physician of judgment and learning, who flourished a little before the time of Galen. The method employed by him, consisted in rubbing them on the part until a blister was produced. This method I need not inform you, is now rejected, and the present mode of applying them did not prevail much in practice, until the beginning of the sixteenth century. Disputes which existed respecting the employment of

blisters in a plague which prevailed in Italy about the years 1575 and 1590, directed the attention of medical men more particularly to their consideration, and laid the foundation of a more accurate acquaintance with their virtues and operations.

The term epispastic, from the Greek word *epispao*, to draw, signifies applications which draw the fluids more copiously into the parts to which they are applied. It may, therefore, be considered one of pretty extensive import, comprehending not only blisters, properly so called, but *Sinapisms*, *Issues*, *Setons*, and *Caustics*; each of these in their proper places and in states of disease furnishing us with very important means in a curative point of view. Of these, however, blisters are the *Epispastics* most commonly employed, and they are so designated, because their most sensible effect is to determine upon the skin the formation of vesicles which are filled with a humor of the color of amber. The manner in which this effect takes place seems to be by stimulating the arteries to an increased secretion. This is evident from the symptoms which follow the application of a blister. The skin exhibits all the signs of great irritation—it becomes red and very sensible—the blood circulates with so much activity that it penetrates all the cutaneous capillaries, and the exhalation becomes more abundant. As the natural texture of the skin becomes altered, it is no longer permeable to the fluids which the exhalents carry off, the fluids therefore detach it from the *cutis vera*, they raise it, they accumulate under it, and form the vesicles which the blister plaster covers. This local action is not the only effect which the use of blisters offer to our attention. They exercise a considerable influence upon the system at large. The pulse becomes fuller and more frequent; the animal heat is augmented; many of the organs exhibit the effects of a stimulant impression, and evince by their accelerated movements that they are stimulated and irritated.

The *modus operandi* of blisters, in the cure of diseases, has been the subject of considerable discussion. By some it is contended that their beneficial effects are to be attributed to the local and general excitement, producing new determinations of the fluids, or altering and subduing morbid action. According to others, much of the benefits derived from blistering are attributed to the evacuations of serous fluids which follow their application. Without embracing either of these opinions, I may be justified in stating, that there are cases in which advantages are derived from all of these modes of operating. That from their general operation, they are capable of rousing the powers of life, of communicating to the system an advantageous impression, and of giving to the circulation and the other functions more energy and activity. By this topical impression they are capable of changing the afflux of fluids upon a part which might become fatal, to displace a painful inflammation fixed upon an organ essential to life, and to render it superficial, exciting disease on a part of the body where it may exist without danger. That advantage is derived from the discharge, we infer from the beneficial effects which follow Issues and Setons, from the blistered surface becoming, in fact, an excretory organ, to which not only an increased determination has been made, but by which the over-

distended and inflamed vessels are enabled to relieve themselves of their contents. "So long, therefore, as the discharge continues, so long will there be an especial demand for blood in the blistered part, and a consequent derivation of the circulation from the inflamed and engorged vessels of the neighboring organs." These different effects of blisters will be fully illustrated when I shall speak of their practical application.

The beneficial operations of blisters may be arranged under the following heads :

1. Where the actions of the system threaten to become too weak.
2. Where they are irregular.
3. Where they are partially too strong.

Under the first head their utility is manifested in the advanced stages of *Typhus* or other *Continued Fevers*. In Typhus fevers blisters become very useful, when the powers of the system show a tendency to prostration, when the contractions of the heart become languid, and the patient struggles under anxiety, restlessness, delirium, difficulty of breathing, &c. These symptoms are the result of rapidly increasing debility, and strongly point out the necessity of cordial remedies, with stimulating applications. Blisters seem to be best adapted to these cases as rubefacients. To obtain this effect their situation should be frequently changed, and after being applied four or five hours to one part, should be removed to another. They may be applied successively to the legs, the thighs, upon the arms, to the back, so as to renew each time their general action. It is under these circumstances, less the local impression which we desire, than the advantageous changes produced in the state of the circulation, and in the other functions. Of late the delirium which so commonly attends in the advanced stages of this disease, has been considered as more effectually treated by blistering the whole surface of the cranium. In this disease the brain appears to be the organ which is chiefly disordered—many of the distressing symptoms which occur during its progress, having their origin either in the state of sub-acute inflammation which exists, or the state of congestion. The utility of blisters in such conditions is very decided, and the nearer that the application is made to the diseased part, the greater benefit will be derived. They will be found useful in determining from the part, and giving an impulse to the restorative powers of the animal economy.

In *Continued Fevers*, blisters, judiciously managed, are of great advantage. Without proper attention to the time in which they ought to be employed, they would be productive of much distress to the patient, without any relief following their application. As a general rule they are inadmissible in the commencement of these diseases, and their use should be deferred until the action of the heart and arteries has subsided. There is a state between the reduction of excitement, and the appearance of symptoms of prostration, in which they afford the greatest benefit. Morbid action seems in this state so to have fixed itself, that the natural powers of the system are incapable of relaxing themselves from its thralldom.

These actions, from their continuance, seem to have established a kind of habit, which would run on to exhaustion, unless their course

was interrupted. It is in such states of Continued Fevers that blisters exert a renovating impression, and by changing the existing action tend greatly to subdue it. They are applied with most advantage to the calves of the legs, the inside of the arms, or the back of the neck. Such parts of the body being generally preferred as the most convenient, and from their situation and connections, those upon which the most favorable impressions can be made.

In *Remittent Fevers*, when they have been of long continuance, and the spirits and the pulse of the patient begin to flag, they have been successfully employed. Of their utility, Dr. Lind speaks in high terms, and observes that a remission soon follows their application. Dr. Rush, in his account of the bilious Remittent Fever of the year 1780, informs us that he always had recourse to blisters, if the fever did not intermit after the fourth or fifth day. They seldom failed of producing an intermission in the fever, the day after they were applied. He thought that more immediate good effects were derived from blistering the neck and behind the ears.

In some of the *Eruptive Fevers* the utility of blisters is particularly manifested. In the Small Pox, where the patient is of a lax and weak habit, when the pulse is low, feeble and depressed, and the fever insufficient for the expulsion and suppuration of the pustules, Epispastics are certainly indicated. Dr. Mead also observes, that whenever the maturation of the pustules does not regularly succeed their eruption, and when anxiety, inquietude, difficulty of breathing, and delirium come on, the fever should be quickened by warm cordials, and especially by the application of blisters. Many other authorities, as Sydenham, Morton, and others, may be adduced in favor of the good effects of blisters under such circumstances. They are useful not only in preventing unpleasant symptoms, but are capable of relieving them when present. They, as I have stated, not only promote the maturation of the pustules, but when the fauces are covered with them, and both deglutition and respiration are impeded by the swelling of the throat, blisters, when applied to the neck, are highly serviceable.

In the advanced stages of *Inflammatory Fevers*, when the patient becomes languid, and perhaps comatose, blisters are highly beneficial. They are found useful in relieving many of the symptoms of this state, particularly those obstinate and oppressive headaches, which have resisted every previous evacuation, and which often continue to the last period of the disorder.

These remarks sufficiently illustrate the utility of blisters in the diseases I have spoken of. The same observations are equally applicable in every other species of fever, where such a train of symptoms occur, as have been already described.

The *Second Division* of diseases in which the use of blisters is indicated, is where the actions of the system are *Irregular*. This division will comprehend a great variety of cases, in which, from unequal excitement, either of the nervous or vascular system, symptoms diversified, according to the seat of the irritation, will be produced. It is evident that under such circumstances they will manifest very decided and effi-

cacious powers, since if we deny to them all other modes of operation, at least we cannot dispute their tendency to restore an equilibrium in the irregular determinations of diseases. These remarks will be better illustrated in considering the diseases which arise from irregular action.

Convulsive diseases most commonly have their origin in some irritation of the cerebral system. They generally proceed from undue determinations of the vascular system to this part, or such a degree of irritability as to be excited into irregular actions by the usual stimuli of life. Whatever, therefore, will abstract from this organ, will seldom fail to afford relief, by lessening or destroying the sense of that irritation. Blisters, therefore, are indicated in such cases to stimulate and excite pain in a part of the body that is sound; for, according to the aphorism of Hippocrates, *Duobus doloribus simul abortis, non in eodem loco, vehementior obscurat alterum.*

In *Epilepsy* the use of blisters is too much neglected. Their utility is recommended by Hoffman, Mead, and other more modern writers.

Their effects are most beneficial when applied to the arms, and I have little doubt that their continued repetition would be of decided benefit.

In the *Convulsions* which precede the eruption of *Small Pox*, blisters act as powerful anti-spasmodics—but they should not on slight occasions be employed in this state of the disease, lest by their stimulus they aggravate the fever, and increase the number of pustules.

In *Apoplexy*, in *Mania*, in *Hydrocephalus*, their beneficial effects are well established, and from the peculiar obstinacy of these cases, a single application is not sufficient, but they should be applied successively until the morbid action is subdued.

In those affections of the alimentary canal, designated by the names of *Cholera Morbus*, *Dysentery*, *Colic*, and *Diarrhœa*, blisters cannot be too much commended. In no cases are the sympathetic connections stronger, than between the skin and the mucous membranes. In those diseases of the internal coat of the alimentary canal the powerful influence of blisters is well known. In cholera morbus and dysentery, the application of blisters should never be omitted. They considerably lessen the pain and spasm, however excruciating, by a diversion of it to another part.

In *Colic*, they afford quick and certain relief, and it has been observed by some writers that very soon after their application, purgative medicines have more certainly produced their good effects.

In *Diarrhœas*, particularly of the chronic kind, they are greatly to be depended upon. I have seen the most happy effects from their use, and Dr. Rush speaks of the very essential benefit afforded by them in such complaints. They are most advantageously applied to the inside of the thighs, and they should be kept discharging for a considerable time.

The *Third Division* of diseases in which blisters are useful, is where the actions of the system are partially too strong. This division will comprehend all those cases in which there exists local determinations to particular organs, and other parts of the system. The frequency of these determinations must have struck your attention in your inter

course with the sick, and it is from their consideration that divisions of diseases are founded, and upon them that systems of nosology are established. They constitute, therefore, a very essential point in the treatment of diseases, and it is to their relief that our care must be directed. The necessity of these directions will be obvious, when you consider that there is no constitution which has not its particular weak point, upon which the violence of disease is frequently expended. The utility of blisters will, therefore, be apparent, since they so well support the constitutional remedies which are employed, and lend such important aid to our means of cure. The cases which are comprised under this head, will consist of diseases connected with Inflammatory action.

Before proceeding further, we may inquire, at what *period* in Inflammatory diseases ought we to have recourse to these remedies. From inattention to this circumstance, there has existed much contrariety of opinion, as to the benefit conferred by blistering. For applied, as they too often have been, when the system labored under much arterial excitement, from the general operation of blisters already pointed out, they have tended to do harm; when applied after that action has nearly ceased, they do but little service. To be serviceable therefore, they should not be employed until the Phlogistic diathesis has been so much reduced by depleting remedies, that the irritation produced upon the skin, will, instead of proving a stimulus to the complaint, rather serve to counteract the excitement existing in other parts of the system, and by giving a centrifugal direction to the fluids, save parts essential to life. It is, therefore, by common consent agreed, that blisters are improperly employed before arterial action has been sufficiently reduced, and the excitement lowered to what Dr. Rush has called the *blistering* point. I should enlarge more upon this subject, but it is one which, from its importance, will be enforced upon you by the professor of practice.

The diseases of high local action in which they are applicable, are the *Pulmonic Affections*. In these cases, our chief dependance should be upon bleeding frequently repeated, and we should avoid the early use of blisters. But when the disease has continued some time, when bleeding gives but little relief, the pulse becomes small, and the patient unable to bear further evacuations; under such circumstances Epispastics will produce remarkably good effects. If there be no particular pain, but only a general oppression, the vesicatory may be applied to the back, and afterwards, if the disease be obstinate, first to one side, and then to the other. When thus applied, they will be found to relieve the chest, promote expectoration, and lower the pulse.

In *Inflammation of the Liver, Stomach, and Intestines*, one of the best remedies is a large blister, applied over the part affected. They afford very great relief in such cases, and next to blood-letting, are the most valuable agents we can bring to our assistance.

In *Rheumatism*, blisters do much service, and should always be had recourse to. They create a diversion of the diseased action, and thereby mitigate those acute sensations of pain, and that stiffness which attends this disease. They should be applied over the part complained of, and be repeated as often as occasion may require.

In the various *Anginose affections*, the utility of blisters is well established. In Sore Throat, in Croup, in Scarlatina Anginosa, and other diseases of these parts, they are confidently applied, and the great relief which arises from their use, entitles them to the consideration of very important means in the treatment of these cases. In the Scarlatina Anginosa, which prevailed in Philadelphia in the years 1783 and 1784, Dr. Rush always derived great advantages from their use. He applied them to the neck, or behind the ears.

In *Erysipelas*, they are employed with remarkably good effects. In affections of the head and face, from this complaint, applied to the back of the neck, they have been highly beneficial. When attacking other parts of the body, they are applied over the affected surface, and when this is very extensive, with a rapid extension of the disease, a strip of blister placed along the margin of the inflammation, is very efficacious in arresting its progress.

In *Ophthalmias*, the benefits conferred by this mode of deriving from the affected part, are well known.

Besides these diseases, blisters may be employed advantageously in many others, and particularly those of a Local nature. To extend the further consideration of this subject would take up more time than is necessary, and we have said sufficient to impress you with the importance of the remedy. We shall merely add a few remarks upon the connections of the skin with the general system, as tending to enforce the importance of vesicatories.

The Sensibility of no part of the system is more remarkable than that of the skin; this part of the body being truly said to be the theatre of various functions and phenomena, over which this extraordinary faculty presides without ceasing. The abundant sensibility with which the skin is possessed, seems necessary to support the activity of various functions which are continually in operation—to favor the course of the fluids in the capillary vessels—to promote the secretion of a sebaceous humor—to excite into action the processes of absorption and exhalation—to determine the exercise of the sense of touch, and to establish the sympathetic connections of the skin, with the internal parts of the body. Each of these functions would furnish us with ample materials for consideration, but it is only of the last that I propose to treat. The sympathy most commonly acknowledged is that which exists between the skin and the mucous membrane of the alimentary canal. This is obvious from the disgust, the nausea and vomiting, which follows the existence of various exanthematous disorders, and from various cutaneous eruptions being produced by substances taken into the stomach. It is evinced by the introduction of warm drinks into the stomach, favoring the function of exhalation upon the skin, and the introduction of cold drinks, suspending, in a sudden manner, the same function. Upon the same principle, a bath taken at an improper period, often interrupts the digestive process.

A considerable sympathy exists between the skin and urinary bladder, and this connection is often taken advantage of in suppression of urine, relief being frequently afforded by causing the patient to stand upon a cold floor, or marble slab. The connection between the

skin and lungs is exhibited in the frequent metastasis of disease from this organ to the respiratory system. The connection between the skin and brain, is exhibited in the delirium which accompanies certain inflammatory eruptions, as Small Pox, Measles, Scarlet Fever, &c. Lastly, there is a considerable connection between the skin and the genital system. It well known that persons affected with the itch, with leprosy, and other cutaneous diseases, are often troubled with priapism, and an inordinate desire for venereal pleasures. Attention to these sympathetic connections of the skin, with all the living parts of the body, will render this subject doubly interesting, and will satisfy you that the importance of blistering has not been too much overrated. It will satisfy you that it is not only the local operation which is to be considered, but that by them great and important changes are promoted in parts of the body very distant, and seemingly but little connected. It shows the harmony and order which reign throughout the animal system, and our great obligations to that Being who has caused the instruments of relief, and the structure of our frames so happily to agree.

Of the articles composing the Class Epispastics.

The Class denominated Epispastics, may be divided into three Divisions.

1. Epispastics, strictly so called, or Vesicatories.
2. Rubefacients.
3. Setons and Issues.

The most important article under the first head, is the *Cantharis*, or *Meloe Vesicatorius*, or *Spanish Fly*.

Natural History already noticed.

Chemical History likewise.

The chief use to which Cantharides is applied, is in the form of Blisters. No other known substance produces the effect so certainly, so extensively, and, upon the whole, so easily to the patient, and hence this insect is among the most valuable articles of the *Materia Medica*.

Preparation of the Cantharides, and the formation of Blistering Plaster.

The *choice* of the place upon which to apply a blister, will depend much upon the nature of the disease which is under treatment, and according as our object is to obtain a *general* or *local* operation.

When to obtain the *general* effects, it is customary to apply them to the legs, upon the internal and inferior part of the calves—The advantages of this situation consist—

In the facility of dressing, the plaster can be easily retained in its situation by bandages, and they are parts upon which counter-irritation can be made with greater effect.

Some practitioners prefer applying them to the thighs.

The advantages—The surface more extended and nearer to the seat of the irritation—the texture less aponeurotic—less subject to tedious ulcerations. The latter we prefer when a strong impression is to be made upon the system.

The inside of the arms, another situation favorable for the *general* operation of blisters.

Particular situations selected for particular diseases.

Affections of the chest are favorably acted upon by impressions on the fleshy part of the arm.

Diseases of the eyes and head, restrained by impressions on the neck and upper part of the back.

Diseases of the abdomen and the uterine organs, by applications to the inside of the thighs.

When the operation is *Local*, the nearer the blisters are applied to the seat of the disease, the more beneficial they will prove.

The *form* and shape of the blisters to be employed.

The size of these topical applications proportioned to the results we wish to obtain.

In general, a large blister does not create more uneasiness than a small one, as from its size it is kept closely applied to the skin, and does not change its situation.

The pain produced by the action of Cantharides varies greatly, according to the part to which they are applied, the thickness of the skin, and the general irritability of the constitution. In some cases slight, in others, very acute.

In dressing blisters.

When to keep up a permanent discharge, the means to be employed are—a milder form of Cantharides ointment, or using a watery infusion of Cantharides, with stimulating Resin ointment.

The Savin ointment employed for the same purpose.

The pain of blisters is much connected with their unsteady application; it will be proper, in applying them to children, to surround the blister with a margin of strong adhesive plaster. Thus it is kept steadily applied to the skin, and the pain and irritation from it greatly lessened.

The effects of blisters on the constitution.

The production of strangury, by the absorption of some active principle from the fly—for if the flies are steeped in boiling water, they are deprived of this power of thus acting upon the urinary organs, while their vesicating properties are not much impaired.

The Treatment of Strangury—Much benefit will be derived from the free use of mucilaginous drinks and mild diuretics—as barley water, the parsley root tea, water-melon seed tea, &c., opiate enema.

Lytta Vittata—*Potatoe Fly*.—Native of the United States.

Has a considerable resemblance to the imported fly.

From experiments made with these flies, they possess vesicating properties equal, if not superior, to the imported.

Vesicatories derived from the Mineral Kingdom.

Tartarised Antimony, already noticed.

Nitric Acid—

From the promptness of its operation, and its local irritation, it has

been employed in diseases which are rapid in their progress, and dangerous from their irregular determinations—Employed in Cholera Morbus—Applied to the whole of the Epigastric region properly diluted, a speedy action commences, and with it much relief is afforded.

Two parts of the acid are diluted with one part of water, and with this mixture, the surface over the affected part is to be rubbed. As soon as the patient experiences pain from it, the acid is to be neutralized by washing the surface with a solution of Carbonate of Potash. The cuticle can now be easily detached, and the cutis vera left raw, upon which a common blister may be laid to keep up the irritation. Employed in other diseases in which prompt vesication is desired—to the low states of fever—to the comatose affections—to mania, and other instances where the ordinary process of blistering is resisted.

The vegetable vesicatories—as the mezereon, the ranunculus bulbosus, and others, seldom employed—their consideration becomes unnecessary.

RUBEFACIENTS.

EFFECTS produced by their application to the surface.

The friction by which they are applied, promotes the intention with which they are directed.

The substances are of an acrid and stimulating nature, as Spirits Turpentine, Mustard, Ammonia, Camphor, the Essential Oils, &c., and the diseases which they are used to relieve, are the slighter degrees of local inflammation—Inflammation of the tonsils, slight pains of the chest, rheumatic affections, are often effectually removed by friction of the surface in the neighborhood with a rubefacient.

Sinapis, or *Mustard*, among the most important.

In the form of Cataplasm, it is quick and energetic in its operation, and on the occasions in which it is used, is a resource, the place of which probably no internal remedy can supply.

The effects produced by its application.

Employed where the powers of the system are suddenly prostrated, or languish under a feeling of exhaustion and faintness. The pain and excitement following the application renew the vital energies, and from the convenience with which they are applied, they become a very essential, and even necessary article in our prescriptions.

The occasions for their use must be familiar to all.

Their preparation—by making a paste of the powdered Mustard with vinegar, and apply it to the skin, spread on cloth. The Rubefacient action quickly succeeds, which cannot be long supported, and it must be removed in the space of half an hour, or an hour, otherwise very painful and distressing sores would be produced.

A few words may be said upon the uses of *Mustard Seed*, (*Semen Sinapi*) in diseases.

It has been recommended in several diseases, as in Dropsy, Rheumatism, Impaired Appetite, Indigestion, Asthma, and several others. As a popular remedy, it has been, and is still in vogue in many parts, particularly in England. The white mustard seed is proposed, and it is directed to be taken in doses of a *tea-spoonful*, unbruised, in a little cold water, two or three times a day.

It does occasionally prove useful as an aperient, and for this purpose may be employed advantageously in the chronic diseases mentioned. As a popular remedy, it has had a great run, but, like other catholicons, it has probably nearly run its course.

Oil or Spirits of Turpentine—A valuable rubefacient. Aided with the friction of flannel, the skin becomes as tender and painful, as when a blister has been applied—and in affections of the chest and abdomen, may often be substituted for its more permanent impression.

Seldom employed alone, but combined as follows :

℞. Spirits Turpentine,
Spirits of Hartshorn,
Olive Oil— each equal parts, form a very
useful embrocation.

There are a variety of other articles commonly employed as rubefacients—as Garlic, Horse-Radish, Capsicum, Tincture of Cantharides, Aq. Ammonia, Spirits of Camphor, &c. Having already spoken of their general operation, and the diseases to which they are applicable, it is unnecessary to treat of these articles separately. They may be employed singly, or united to the formula already furnished.

Where a mild preparation is required, the following may be employed :

℞. Spirits of Camphor,
Olive Oil,
Hartshorn— each equal parts.

To these, the Tincture of Opium may be added, where benefit will ensue from an anodyne operation.

A still stronger embrocation is made as follows :

℞. Olive Oil, 3 iiss.
Sulphuric Acid, 3 ss.

This preparation is well adapted to chronic rheumatism, and chronic pains in various parts of the body.

Red Pepper infused in spirits, forms a very good embrocation.

Granville's Lotion—

℞. Spirits Camphor, 3 ii.
Spirits Rosemary, 3 iv.
Strong liquid Ammonia, 3 x.—m. for a liniment.

Capsicum Liniment—

℞. Powdered Capsicum, 3 iii.
Powdered Mustard Seed, 3 iss.
Camphor, 3 ss.
Powdered Cantharides, 3 iii.
Alcohol, 1 pint—digest and add
Spirits Turpentine, 3 vi.

The above recommended by Prof. Geddings as a rubefacient in Cholera, and in collapse of the system, used freely.

Another---

℞. Alcohol,	℥ ijss.
Sulphuric Æther,	℥ ij.
Tincture Opium,	
Tincture Cantharides,	
Aqua Ammonia, each	℥ ss.
Ol. Origanum,	
Ol. Rosemary, each	℥ i.
Ol. Sassafras,	℥ ij.
Camphoræ, (Gum,)	℥ v.—mix.

Apply as a Liniment in Local Rheumatism, Sprains, Bruises, &c.

SETONS AND ISSUES.

THE Third Division comprehends *Setons and Issues*—the manner in which they are formed.

Setons are much employed in Surgery. Unless kept very clean, and dressed with much tenderness, they excite much irritation, and prove very troublesome to the patient.

Issues not being subject to these objections, and being upon the whole better adapted to the curative intentions in disease, the remarks made will be confined to them.

Issues—refer to Prof. of Surgery for the manner in which they are established.

They have been in use from a very early period in medicine, from the time of Hippocrates to the present day.

Diseases in which they have been used.

In *Phthisis Pulmonalis*—Their utility confirmed by the very beneficial effects which have followed the spontaneous production of abscesses in the axilla in phthisical cases. They may be applied to the sternum between the breasts, and kept discharging two or three months.

In *Chronic Hepatitis*, and other morbid states of the Liver. The deranged conditions of this viscus are often relieved by the occurrence of a diseased state of the skin, as gutta rosacea, herpetic eruptions, and leprous desquamations. A caustic issue has the same effect, and it possesses the advantage of being easily applied at any time, and easily healed.

The efficacy of the discharge is confirmed by the practice so common in India, of establishing these artificial drains in the neighborhood of the diseased organ. It has been noticed as a very common occurrence, that the porters who generally go naked to the middle, exhibit in their sides either issues in operation, or the cicatrises which have been formed.

The use has extended to the treatment of *Dyspepsia* and *Hypocondriasis*.

In obstinate cases of *Leucorrhœa*, which had resisted all the usual remedies.

In *Menorrhagia*, applied on each side of the spine above the ilium.

In Scrofulous affections with advantage.

In *scrofula* of the hip joint, or that disease called *Morbus Coxarius*, and in that affection of the spine, known under the name of *Spina Bifida*.

DIVISION 12.

STIMULANTS.

HAVING completed what was necessary to be said on the articles which promote particular secretions, I shall proceed to speak of those, the action of which is general and diffused over the system. The medicines of which I am now to treat, exhibit their effects upon the several systems of the body, as the arterial, the nervous, the muscular, &c.; those of which I have spoken have their operation upon its parts.

By the term Stimulant, is meant an agent endowed with the power to increase the mobility of the system, or, in other words, to excite sensation, motion and thought. It is not to be supposed that the articles of this Division differ only in the degree in which they are capable of producing these effects, but in each is to be observed not only a difference of power, but also in their specific operation upon the system. Thus, to some belong the property of exciting the action of the heart and arteries, of producing warmth upon the surface, and with these a renewal of the vital energies. These are what I would denominate Stimulants or Incitants. Others, in addition to these general effects, manifest a particular action upon the sensorium commune, or general nervous system, as evinced by the property of inducing sleep, allaying pain—these are called Narcotics. Others, besides a stimulant operation, have the effect of allaying irregular muscular contraction; and to these is applied the term Anti-spasmodic. To the head of Stimulants may be referred two other classes of medicines, the operation of which is more slow and gradual, but their effects are equally obvious. These are Tonics and Astringents. Under this term then, we have arranged five classes of medicines, each of which I shall consider in their order.—*Murray's M. M.*

First, of those called Stimulants, or medicines increasing the action of the heart and arteries.

Stimulants produce their effects by an impression upon the nervous energies of the stomach, which being communicated to the sensorium, is thence diffused over the system. The operation of these substances is too rapid, to admit of the supposition of their introduction into the circulation. By the impression upon the stomach through the medium of the nerves, the vital energies are excited, as is evinced by the activity

of the mental and corporeal powers, the increase of the force and vigor of the pulse, by the general determination of blood to the surface of the body, producing heat, flushing, and even perspiration. From a knowledge of their effects, we judge of the diseases to which they are applicable. Employed with caution, they become very valuable in those cases of debility succeeding fevers, or other violent diseases, when the morbid action ceases, and no organic disorder remains.

At the present time, it is so fashionable to attribute all diseases to inflammation, that it might almost be questioned whether such a class as Stimulants should be retained. We confess that we are not so much a convert to the physiological system of medicine, as to admit of their exclusion from practice. We still, however, consider that they are less necessary, and that their administration should be more cautiously regulated than has been usual. This is more particularly the case when we reflect, that all the symptoms of prostration may be produced from irritation or inflammation of particular organs. Take for example typhus, and the low forms of fever generally. The symptoms most strongly characteristic of these diseases, arise in lesions of the cerebral, spinal and nervous systems. Inflammation of these systems is followed by great prostration of strength, frequent pulse, excited skin, depraved secretions, stupor, coma, convulsions—and it is for the relief of these very symptoms that stimulants are so frequently employed.

There are other cases, however, where typhus is strictly adynamic, and in which the free use of stimulants becomes necessary. These cases are, however, rare, compared with the acute forms of the disease. The symptoms are great prostration of the muscular and nervous energies, delirium, hæmorrhage, scattered petechia, soft, fluent pulse, heat of the skin little increased, or below par. Under these circumstances it is necessary to administer Stimulants, and often to a considerable extent.

It is obvious, therefore, that in the employment of these medicines much discrimination is required, and that until a correct diagnosis is drawn, mischief rather than benefit must arise from the use of Stimulants. The practitioner, therefore, should make himself acquainted with the Pathology of disease, and that he may be guided in his researches, he must have recourse to the productions of the French school. He will be much assisted by Goupil's exposition of the modern doctrines, Broussais on Chronic Inflammation, Louis on Gastro Enteritis. But though Stimulants are improper while inflammation exists, yet they become proper at its decline, to put an end to the relaxation and inaction which occur in parts that have been long stimulated. Under these circumstances the powers of the constitution languish, the circulation is feeble, and the digestive function is weak. The functions here, are materially assisted by a supply of gentle stimulation, and it is then that they are useful and safe.

PARTICULAR STIMULANTS.

Carbonate of Ammonia—Sesqui Carbonate of Ammonia.

Preparation—

The effects of this article as a Therapeutical agent are—Stimulant, excitant, or califacient.

Effects upon the system—

It produces a warmth in the mouth, throat and epigastrium, frequently attended with eructations.

A temporary excitement of the vascular system succeeds, this excitement being often of short duration.

The heat of the skin is sometimes increased, with a tendency to perspiration.

Sometimes other secretions are excited, as the Urinary.

The nervous system is also affected, and the activity of its functions is heightened, as evinced by the increased capability for muscular exertion, and the great facility with which all the functions are executed.

It is employed, therefore, with advantage as a stimulating sudorific in

Continued Fevers, which have existed for some time, and when the activity of the circulation is abated.

The usual dose is grs. v. every second hour—but it may be given to the extent of grs. x. every hour, and even every half hour.

As its effects are evanescent, perhaps more so than any other medicine, the doses ought to be small and frequently repeated.

In one respect, the vol. alkali differs from any other article of the class, which is, that though it is a powerful stimulant, it excites an action which approaches nearer to health than any of them. On this account it is used earlier than any other medicine in Inflammatory affections, and with greater safety in mixed cases than most of this class.

It may be given in pills, or what is preferable, in the form of Julep, as follows :

℞. Carbonate of Ammonia,	3 i.
White Sugar,	3 iii.
Mucilage,	3 vi.
Spts. Lavend. Comp.,	3 ii. m.

Dose, ʒss. every hour or two hours.

In other forms of Fever it is given.

In *Intermittents* it has been recommended.

When given before the period of accession, it either prevents the paroxysm, or mitigates its violence. It may also be employed during the hot stage, in the state of *Spiritus Mindereri*, with great benefit, in order to bring on perspiration.

In *Remittents* it is also useful, where there is any tendency to Typhus.

In some *Inflammatory* affections this article has been recommended.

In *Pneumonia*, after action has been subdued by depleting measures, when the expectoration is deficient, the skin dry, and the pulse small, it has been given in combination with a Decoction of Seneka, with the effect of promoting perspiration, and a more free expectoration.

In that form of *Pneumonia* called the *Typhoid*, this article, in conjunction with other sudorifics, forms the most successful plan of treatment.

The practice pursued in this disease.

In many of the affections of the *Alimentary Canal*, the Carbonate of Ammonia is employed with advantage.

In *Flatulent Colics*, unconnected with Inflammation.

In *Cardialgia*, depending upon acidity—and in the same affection when it occurs in the early and late stages of pregnancy, this article combined with magnesia and other substances, has been found very efficacious. The following is the usual formula :

℞. Aqua Ammonia,
 Calcined Magnesia, each ℥i.
 Cinnamon water, ℥ii.
 Water, ℥iv. m.

Dose, ℥ss, whenever the uneasiness is experienced—and by taking a dose before each meal, the recurrence of the uneasiness is prevented.

In *Gastric affections* supervening on habits of irregularity and debauch.

In *Chronic Rheumatism*, in combination with the Tincture of Guaiac, forming the Volatile Tincture.

In *Hoarseness* depending upon relaxed states of the throat, beneficial effects have been obtained from its use.

In diseases of the class *Neuroses*—Not useful in any but as a palliative in Hysteria, and a stimulant in Syncope.

The *Ammonia* has been reported as possessing the power of quickly bringing an *intoxicated man* to his senses. The reports contradictory on this subject.

The circumstances which in our opinion render it efficient.

As an *application to Burns*—It has been recommended by M. Guerand, and employed in the form of caustic ammonia.

When the burn affects the extremities of the fingers, they are immersed in the liquid without any addition of water. When the seat of the burn does not admit of such immersion, compresses dipped in the liquid are applied, preventing the evaporation by means of a water proof covering. The pain is thus removed. As evaporation takes place, a renewal of the solution should be made.

The stronger the solution the more efficacious.

When there is solution of continuity it should not be used.

Lastly, in the bites of *venemous reptiles* it has been recommended.

It is given internally in large doses, and the part is bathed with a solution of the same, and popular opinion is in favor of its utility. Applied externally, it may be beneficial by uniting with the poison, which is probably of an oily nature, and thus neutralizing its activity.

A variety of other diseases are enumerated by writers in which this article is beneficial. We are, in our opinion, in possession of remedies better adapted to them, and shall omit their enumeration.

The preparations are the

Concrete Carbonate of Ammonia.

The water of Ammonia pure.

The Acetate of Ammonia.

Camphor.—This article has been variously arranged by writers on the M. M.—by some placed among the Narcotics, and by others among the Anti-spasmodics. The present situation seems to be the least objectionable, as the property most strikingly exhibited is its Stimulant. Its Natural History I have already spoken of, and shall refer to what was said on that occasion—vide Diaphoretics.

Application of Camphor to diseases.

By some it has been considered Sedative.

This opinion is somewhat remarkable when its sensible qualities are considered, since no medicine exhibits more evidently stimulating properties.

Its *taste is acrid*, and when swallowed a degree of heat is experienced in the fauces, with some pain and uneasiness, which is probably owing to its stimulating the upper orifice of the stomach.

In small doses, it produces much general excitement, and if pushed very far, it brings on convulsions, delirium and death.

Composition—Carbon, Hydrogen, Oxygen.

The operation of this article is somewhat peculiar. From its sensible properties it is undoubtedly stimulant, yet it does not exert as much action upon the sanguiferous system as is commonly supposed.

It has an action upon the brain and nervous system in such a degree, as to be considered one of the Sensorial Stimuli, and it is probably from its action upon this part of the system, that its good effects in diseases are owing. Its action upon the sensorium is different from that of the Narcotics in moderate doses, since it is not always followed by a disposition to sleep.

In its action as well as composition, it seems to be *sui generis*, and is better arranged under this head than any other.

Camphor is absorbed as we formerly mentioned, and is thrown out of the system by the bronchial membrane principally. It has also been recognized in the perspiration.

Medical uses—It was at one time much used in *Fevers*, but it has been neglected of late, and much more so than it deserves.

It has most frequently been employed in those *Fevers considered Typhoid*, particularly when attended with marks of great debility, or prostration of strength, and in these cases it is by some much preferred to the vol. alkali. Both are, no doubt, admirably adapted to meet the indications in such cases, and they may be employed alternately, in order to avoid their losing their power, by the system becoming habituated to either.

When employed for this purpose, the following formula will be the pleasantest mode of administering it.

Rx. Camphor,	℞i.
Powdered Gum Arabic and	
White Sugar, each	ʒii.
Or Sweet Almonds blanched,	one or two dozen.
Rectified Spirit,	gtt. x.

The Camphor is first to be rubbed with the Spirit to promote the pulverization, and very slightly the solution of the Camphor.

Then add the Sugar, powdered Gum Arabic, or Almonds, beat the whole into a pulp. Add

Water, or Mint Water, slowly, \bar{z} vi.

Laudanum, gtt. xx.—strain.

Dose, \bar{z} ss. to \bar{z} i.

The quantity of Camphor which remains in solution is very small, and the liquid can scarcely be said to possess more than the flavor and odor of Camphor.

This is a very pleasant and useful mixture, extremely well adapted to these cases, and I think preferable to the vol. alkali.

From its influence over the Cerebral system, it has been frequently used in Fever to allay the nervous symptoms, as the delirium, watchings, subsultus tendinum, and often with success.

In *Gangrene* it is recommended by the German physicians to promote a separation of the slough, and it is employed internally and externally, by sprinkling the powder on the part, or bathing it with the Tincture.

But it is less used for this purpose since the discovery of the efficacy of Blisters, in arresting the progress of mortification. It is often necessary to support the strength of the patient, and this is best done by a combination of Bark and Camphor.

In *Intermittents* the same combination will be found useful, given during the intermission, and before the expected paroxysm.

In the *Exanthemata* it has been long celebrated to promote the eruption, and to bring it back if it had receded—and in the confluent Small-pox it is used to promote the filling of the pustules, and to change the type of the Fever.

In *Inflammatory Fevers*, after action has been reduced, Camphor, in combination with Nitrate of Potash and Tart. Antimony, has been held in much repute to excite perspiration, and change the action of the disease. Of this combination I have already spoken under the head of Diaphoretics.

In *Chronic disorders* it is used more freely and with less danger. In some cases a little opium is joined, which prevents the uneasiness which Camphor of itself is apt to produce, at the same time increasing its operation by the skin—a compound of Camphor and Opium being one of the most powerful Diaphoretics.

In *Chronic Rheumatism*, or other disorders, where copious perspiration is required, there are few medicines more certain than a compound of Camphor and Nitrate of Potash, about grs. v. of the former, and x. or xv. grs. of the latter, to which half a gr. of Opium may be added, and the dose repeated every two or three hours.

In *Dysmenorrhœa*, or painful menstruation, nothing has been found to afford more relief than large doses of Camphor in conjunction with Opium, and of the benefit afforded, we can speak from experience, having seen it operate in many cases almost instantaneously. The proportion used is

Camphor, grs. ii. to iv.

Opium, grs. 1.

Made into a pill, and repeated every two or three hours, until relief is obtained—a valuable combination.

In the treatment of *Spasmodic and Convulsive diseases*, Camphor has been much celebrated, but it is now little resorted to.

In *Mania, Melancholia*, and other forms of mental disorder. In these cases Camphor is taken to occasion exhilaration. In persons of a nervous temperament it is much used for this purpose. In the Inflammatory forms it ought, of course, to be avoided, until action is reduced by venæsection, and other means of depletion, when the employment of it with opium, will be found useful in allaying irritation and procuring sleep.

There is, however, says Dr. Chapman, a form of *mania* in which we can resort to it at once, without premising any depletion.

It is in those cases in which mania is simply an affection of the mind, the system not sympathizing at all, as when it comes on from grief, or a religious melancholy. Here camphor and opium, with blisters to the extremities, and the alternate use of the warm and cold baths, form the best mode of treatment. The patient is to be taken from the warm bath and plunged immediately into the cold, in order to give a sufficient shock.

It is, however, more especially in that species of mania which arises in intemperate and debauched habits, that camphor exhibits its best effects. When the system is too much reduced by long habits of indulgence in ardent spirits to support blood-letting, emetics, or the cold bath, this article will be found beneficial.

Given in doses of five or eight grains every hour, with laudanum, it will subdue the distressing hallucinations of the patient, renew the sensorial functions, and excite sleep.

The formula which I have commonly employed, is that already recommended, the quantity of laudanum being increased.

Camphor is often a useful addition to opium.

Persons who cannot procure rest, except by large doses of opium, will sometimes succeed by combining small doses with camphor.

Camphor dissolved in Spirits of Turpentine, in the proportion of $\text{z}ii.$ of the former to $\text{z}i.$ of the latter, is a good application for the toothache. Kreosote of a good quality is better.

In *Chilblains*, the Tincture of Camphor is generally considered a useful article, so much so, that many practitioners would consider it heretical to employ any other remedy.

As an *external* application, few articles are more extensively employed in this form. It is literally the family panacea, and the bottle containing the camphorated brandy is resorted to with much faith and confidence in its utility. It is certainly an excellent article in all local pains and bruises, and is much employed by physicians as an ingredient in liniments, &c.

Camphor is given internally in various forms.

It is given in the form of mixture, by rubbing the Camphor with sugar, almonds, or thick mucilage, and adding water by degrees. The operation is much promoted by previously adding a few drops of the spirit of wine, or other spirit, by which the Camphor is dissolved—or it may be suspended in milk, and this last mode of exhibiting it seems to be generally preferred.

The camphorated mixture of which I have spoken, is as neat a preparation as any that is prepared, and will serve for most purposes when this article is required.

There is a preparation of Camphor which from its excellence deserves to be noticed. It is a solution of Camphor in water, saturated with carbonic acid gas.

It is prepared in the following manner :

If pulverized Camphor is diffused in water in a Nooth's apparatus, or any similar contrivance, and carbonic acid gas is extricated by pouring sulphuric acid upon lime, the water will take up a considerable quantity of the gas, which also dissolves a portion of the Camphor. This is a very excellent preparation of Camphor, often of singular use in irritability of the stomach, and in incipient vomiting.

Family *Coniferae*—*Oil, or Spirits of Turpentine*.—This article, from the diversified indications it is capable of fulfilling, is entitled to a conspicuous station in the M. M.

Its Natural History and preparation have been already detailed.

The Oil, or Spirits of Turpentine, taken into the system, is an active and diffusible stimulus, occasioning a sense of warmth in the stomach, and commonly throughout the body. It is absorbed, circulates with the blood, and in this manner affects the capillary vessels. It is thrown out of the system by the different excretories, on the vessels of which it acts in its passage through them.

The exhalations of the skin, and the bronchial membranes, acquire a marked terebinthinate odor, while the urine obtains the smell of violets.

On the Renal vessels it proves diuretic, and on the cutaneous vessels it proves sudorific. Its continued use brings on irritation of the urinary organs, even strangury, bloody urine, suppression of the secretion, with fever, thirst, and vomiting.

It has of late been introduced very extensively into the practice of medicine, and from the success which has followed its use in many distressing and dangerous diseases, it is entitled to your attentive consideration.

Of the diseases in which it has been employed, the first in importance is *Puerperal Fever*.

This disease has raged at different times, with considerable malignity, in different parts of England and this country, so that few of those attacked escaped.

Though not always so destructive in its progress, yet the mortality was still very considerable.

The effect of the employment of this article has been, to arrest its destructive progress, and in some instances, to restore the patient under the most unpromising circumstances.

The nature and character of Puerperal Fever described.

It is when these symptoms occur, denoting the extension of the disease to the Peritoneum, that the Spirits of Turpentine exhibits invaluable effects. Given in doses of from ʒii. to ʒss. , with an equal quantity of castor oil, it produces very copious discharges from the bowels, and with them, a relief to all the distressing symptoms I have mentioned.

Peritoneal Inflammation is confessedly at all times very difficult of cure, and a variety of remedies have been employed for its relief with but little advantage. Some medicine is required, which while it supports the strength of the patient, will excite a copious secretion from the whole internal membrane of the intestines, and thus determine morbid irritation from the Peritoneum. Such a medicine we possess in the Oil of Turpentine, which, while acting upon the principle of a counter-irritant, determines fluids from the intestines, and by its purgative operation, these increased secretions are carried out of the system.

Recommended in those cases where Typhoid symptoms are manifesting themselves.

At other times, when it occurs in Hospitals and crowded cities, it must be resorted to early.

To the internal use of the article, its external should also be conjoined, as the irritation of the skin will be found to relieve many of the urgent symptoms of the disease.

In the advanced stages of *Pneumonia*, particularly when of a Typhoid character, this article may be employed with the greatest advantage. When it is virging on a fatal termination, there are many properties possessed by it, which render it highly deserving of attention. Entering the circulation, and stimulating the secretory and excretory vessels, it exerts an influence much more exciting and enduring, than would readily be conceived.

It is given for these purposes in small doses frequently repeated, and has proved very efficacious after other remedies had failed to afford relief.

The dose should be xx. to xxx. drops, repeated every hour or two hours, and it is most conveniently administered with the white of egg.

In *Epilepsy*, this article has acquired no inconsiderable reputation.

It is given in doses of from zi. to zii., three or four times a day, and thus administered, cures have been accomplished in adults laboring for two years under this disease.

Circumstances limiting the use of this medicine.

When the disease depends upon organic lesions within the osseous envelopes of the nervous centres, no benefit can be expected to be derived from the use of this, or any other article. It is only when it originates in parts distant from the cerebro-spinal axis, that benefit can be derived from the use of these agents, which, while it stimulates the abdominal viscera, operates as a Cathartic and Anthelmintic, and produces a derivative action on the head.

As an *Anthelmintic*, its value is well known.

In *Chronic Rheumatism*, highly recommended, given in small doses.

In *obstinate obstructions* of the *Bowels*, combined with Castor Oil, in the proportion of zii. of Spirits Turpentine, to 3 ss. of Castor Oil, every two hours, until it operates.

In *Irritable* conditions of the stomach, as occurs in Yellow Fever, it has been recommended and employed, but it is a remedy of very doubtful efficacy.

In *Chronic affections* of the Thorax, unattended with Fever, but when pain is referred to one spot, with a general uneasiness of the re-

spiratory system, a slight hacking cough, oppression, and a sense of weight about the precordia, and these symptoms occurring in a phlegmatic constitution, Turpentine given in small doses, or a tincture of the gum, has been found beneficial.

In *profuse* discharges from the *mucous membranes*, it operates by a topical influence over the capillary and secreting vessels, in its passage through them. In some instances, its operation is confined to an increase of tonicity in the vessels which pour out the mucous—and in others, to a new kind of action, or irritation in the affected membranes, which supersedes the previously existing disease.

In *Gonorrhœa* and *Gleet*, it has been employed as a substitute for Copaiva.

Where relief is afforded by the use of this article, it is generally speedy, so that it is not necessary to continue its use longer than five or six days.

Where it is useful, from the tendency of these diseases to recur, it should be continued some time after the symptoms have disappeared.

In *Fluor Albus*, the Terebinthinate medicines have been employed, and sometimes with success, but they are generally ill adapted to the feeble constitutions in which this disease occurs.

In *Catarrhus Vesicæ*, or Cystirrhœa, it occasionally acts beneficially, but it is required to be used in small doses, and with caution.

In chronic *Pulmonary Catarrh*, and in chronic *Diarrhœa* and *Dysentery*, it has proved advantageous. In the last cases, it has a decided local action upon the affected part, besides acting upon the mucous surfaces after its absorption.

In *Tympanitis*—To relieve flatulent distension of the stomach, and the colic thereby induced.

It should be given in full doses so as to act *as* a purgative, or it may be administered in the form of enema—also in *Acute Tympanitis* of the Puerperal state.

Besides these diseases, it is a valuable Styptic in *Hæmorrhages*. Employed externally, a dosil of lint dipped in the Spirits of Turpentine, and applied to the bleeding vessel, is very efficacious. Internally, employed in hæmorrhages from the stomach, it has succeeded after other means have failed, united with the white of egg.

In *Nasal Hæmorrhages*, which nothing else has stopped, ten drops of Turpentine, taken every two or three hours, has entirely arrested the bleeding in less than twenty-four hours.

Hæmorrhages from other parts, particularly those called *Passive*, have been arrested by the same means. Its virtues, as a styptic, depending upon its exerting some direct influence on the contractile power of the blood-vessels.

It relieves the pain arising from the *sting* of bees, or other insects, rubbed over the part.

The forms of administration—

The best mode of taking it, is mixed with any aromatic water, or blended with mucilage or honey, or white of egg, or with magnesia.

Another mode, is to dissolve the Terebinthina Vulgaris, or Gum Tur-

pentine, in whiskey, or brandy ; of this from 3 ii. to 3 ss. may be taken, diluted with water.

As the dose varies according to the disease, we shall briefly recapitulate on this head.

In doses of 3 i., or less, taken repeatedly in the day, it is used in removing chronic pains of the limbs, chest and elsewhere.

In doses of 3 i. to 3 ii. or 3 iii., it is used in adults laboring under Epileptic Convulsions, Puerperal Fever, obstructions of the bowels, and in the irritable state which attends Yellow Fever.

As a Vermifuge, in doses of 3 ss. to 3 i. or 3 ii., in cases of Tænia—and in smaller quantities in the other species of worms, combined with Castor Oil.

As an external remedy—

It is employed as a *Rubefacient* in numerous diseases, on the principle of counter-irritation.

As in the form of Liniment in Chronic Rheumatism, Sprains, Neuralgic Affections, &c.

In the form of Fomentation, to produce redness of the skin in Puerperal Peritonitis.

As a powerful local stimulant, it is recommended by Dr. Kentish as an application to scalds and burns, particularly if attended with great constitutional depression.

It is an ingredient in many nostrums.

Whitehead's Essence of Mustard, contains Turpentine, Camphor, and a portion of the Spirits of Rosemary.

St. John Long's Liniment, consisted of Oil of Turpentine and Acetic Acid, held in suspension by yolk of eggs.

CREOSOTE.

So called from its power of preserving meat, from Kreas flesh, and sozo I save.

A substance of the nature of volatile oil, discovered by Reichenbach in the products of the distillation of wood.

It was discovered with five other principles, called paraffine, cupione, picamar, capnomer, and pittacal.

Preparation.

Properties—

Colorless oleaginous liquid, of the consistence of oil of almonds.

Taste, caustic and burning, followed by sweetness.

Odor, penetrating, disagreeable, like smoked meat.

To the touch greasy, volatilizable by heat.

Medical properties and uses—

Irritant or stimulant, narcotic, styptic, anti-septic, moderately escharotic, and by some, alterative and astringent.

Of all the various uses to which Creosote has been applied in medicine, there is none in which its efficacy has proved more valuable than in checking vomiting, unconnected with any organic disease of the sto-

mach. Its utility has been very favorably spoken of by several distinguished practitioners, viz: Drs. Elliotson, Thompson, &c.

It has been employed in the vomiting which accompanies the colica pictonum, or painter's colic—in attacks of ordinary colic, in hysterical conditions of the system attended with vomiting, in vomiting from pregnancy. It should be observed, that it is chiefly useful where the condition of the stomach depends upon nervous irritability of the system, and to be improper in those cases complicated with inflammation.

℞. Creosote, gtt., vi.
Mucilage, 3 ii.
Water, 3 iv.

Dose, 3 ss. to 3 i., every two or three hours, according to circumstances.

Or,

In the form of pill as follows :

℞. Creosote, 1 drop.

Aromatic confection, grs. iv., for pill 1.

The form of pill preferred in those cases where patients have a strong dislike to the creosotic odor, and administered as above.

Creosote has been useful in arresting vomiting after other articles have failed.

In diseased conditions of the mucous membrane of the *Alimentary Canal*, it has been employed with considerable advantage, and the forms in which it is more particularly useful, is in *Cholera Infantum*, *Diarrhæa* and *Dysentery* of adults, accompanied as they often are with pains, griping, &c.

In *Hæmorrhage* from the bowels, and from other organs of the body, it has also been employed, and with beneficial effects, proving itself often more valuable than the Spirits of Turpentine.

In *Diabetes*, Creosote is, perhaps, the most generally efficacious of any known remedy. Dr. Elliotson has reported four cases, differing in many general respects, in all of which it was of the greatest service.

In *Epilepsy* it has been tried, but without any satisfactory results.

Creosote has been pretty generally tried in affections of the *lungs*—but the experiments of several persons have determined, that it is not a remedy which should be given in Consumption, though in cases of increased secretion from the bronchial tubes, without inflammation, and in *Asthma*, depending upon a morbid excitability of the mucous membranes of the bronchia, it has been found of eminent service.

External application of Creosote—

Toothache—Preferable to other remedies—relieving the pain more certainly and speedily, and prevents its recurrence for a longer period—Chiefly useful when the nervous pulp is exposed—Introduced into the cavity of the tooth by means of a camel's hair pencil, or quill.

In *various cutaneous diseases*—as Scabies, Ring-Worm, Impetigo, Acne Rosacea.

To Chilblains.

In Burns.

In Ulcers of the scrofulous, phagædenic, and venereal kinds, it has been found most useful, and in others having a cancerous appearance.

To correct the fetor from ulcerated surfaces.

ALCOHOL AND ITS COMBINATIONS.

ALCOHOL is the product of the Saccharine principle, and is formed by the successive processes of vinous fermentation and distillation.

It is presented to us variously combined, according to the substances from which it is obtained, and of different degrees of strength.

It is the same substance in rum, brandy, gin, whiskey, in wines, and in the number of intoxicating drinks, which the ingenuity of man has discovered in every section of country throughout the globe.

Its flavor, however, is modified according to the substance from which it is obtained, and its strength is influenced by a variety of circumstances which will be detailed to you from another chair.

From all these different liquors, the spirit can be obtained perfectly pure, and concentrated by repeated distillations.

When thus obtained, it is colorless and transparent, its odor is fragrant, and its taste highly pungent; in its specific gravity it is lighter than water, and this will be in proportion to the degree of concentration.

Its effects upon the system, are those of a powerful, and highly diffusible stimulus, increasing the activity of the circulation, exciting muscular energy, and great exhilaration of spirits. Given to a large extent, these effects are followed by intoxication, temporary delirium and stupor, exhibiting a strong analogy to the Narcotics, a class of medicines soon to be described.

In this state of concentration of Alcohol, it is seldom used internally, for though it might be employed, to rouse the powers of the system, it could seldom be used advantageously to repress irregular action, to graduate the excitement, to diminish irritation, or to induce sleep.

It is, therefore, principally employed as an external application to burns—to certain states of local inflammation not connected with increased action, to restrain hæmorrhages, and for the relief of muscular pains.

In the *states of dilution in which it exists in spirits*, and in *wines* particularly, it becomes more extensively useful in diseases, being more agreeably exciting, more cordial and pleasant to the stomach, than any other stimulating article employed in medicine.

In the *state of Wine*, the stimulant operation of Alcohol is less sudden and more permanent, it excites action without exhausting the excitability in any great degree, and from its gradual operation, may be considered in comparison with ardent spirits, as exerting a Tonic effect.

To these may be added the nutritious substances which exist in Wine, by which the system is invigorated and supported.

The diseases, therefore, in which Wine is applicable, may be readily supposed to be of the typhoid character, when the indication is to support the strength of the patient, and to obviate symptoms of debility.

It is in these cases that it acts not only as a stimulant, but by inducing a more healthy action in the blood-vessels of the brain, it removes the unpleasant symptoms which so often attends in these cases, as delirium, subsultus tendinum, restlessness, &c.

By the agreeable sensation it gives to the stomach, it is not only refreshing, but it communicates tone to the bowels, and excites a desire for nourishment. Gently assisting therefore, and cherishing the languid powers, it promotes all the natural evacuations, without increasing the disease, and by quickening the languid circulation, prevents those congestions from taking place in various parts of the system, which aggravate the original affection. For the production of these effects it must be given frequently and with great freedom, and, therefore, we may say with safety, that in all severe cases, Wine is the article chiefly to be depended upon.

By this practice being perseveringly employed, we may with confidence declare that many have been preserved from malignant diseases by the proper use of Wine alone.

But in advocating the use of Wine in the low stages of Fever, I would caution against the abuse of it. There are circumstances in the constitution of the patient, or the disease, which plainly forbid its use. In advising it, therefore, its effects are to be daily considered.

If it does not give uneasiness to the stomach, nor increase the Fever, restlessness, and raving—if the sick are refreshed, composed, and inclined to sleep by it, have greater freedom from their sickness, or are better supported under it, the conclusion is that it must be a safe and suitable remedy, and without fear we may direct its use in such quantity, time and manner as the disease seems to require, and the sick can bear. If it produces effects the contrary to these, we may safely conclude that it is injurious, and that it ought to be abstained from, or given in moderate quantities.

Thus carefully exhibited, Wine will be found, says Dr. Chapman, not the least important of the stimuli at a proper period in these diseases, being readily taken, even when other medicines are rejected, and with unrivalled effect it sustains, in many instances, the exhausted powers of life.

The state of the skin should also be consulted in the administration of Wine. If it is hot and dry, it ought not to be given, but when the heat is 98° , you may almost invariably administer it with safety, and if the disorder really demands it, with advantage.

Few remedies have been more abused than Wine in Fevers. It is still given by many practitioners of the present day, in every stage and complication, with too free a hand, without a proper consideration of the organic derangements which forbid its use. There are circumstances, however, in *Febrile* diseases, which renders it indispensable to save the life of the patient.

It is demanded in cases commencing with such excitement, as to render the use of depletives essential, when in their course some unexpected symptoms of sinking of the vital powers, or a sudden collapse come on, which render the use of Wine, Brandy and Ammonia necessary. Such cases are not unfrequent, not only in Typhus Fevers properly so called, but even in some of the more acute affections, as Bilious Fevers, and Intermittents of a malignant character.

During the summer of 1831, several patients were admitted into the Hospital, who, trading to Savannah, were detained in the river several

days, and others of the crew of the Revenue Cutter, were attacked with Fever of the climate, and of a very violent character. After the third or fourth paroxysm, great prostration ensued, with congestion, and such feebleness of the vital powers, that reaction seemed as if it could never be excited.

Several of the patients were only restored, by the free use of Stimulants.

Again, the practice becomes useful in persons above the middle age, who have lived intemperately, and in whom these sudden changes are very likely to occur.

The practitioner should be much on his guard in acute cases of Fever, and he will have reason to congratulate himself, who can provide for these emergencies, but he will be doubly happy, who by much care can foresee and prevent them.

Stimulants become necessary in the advanced stages of Typhus Fever, when the symptoms indicate a failure of the nervous and circulating systems, and especially when evacuations have in the beginning been judiciously employed. Here the administration of Wine often acts like a charm, by rousing the languid powers and abating the restlessness.

The quantity of Wine which should be administered in Typhus, must of course depend upon the symptoms, and the degree of action existing in the system.

Sir John Pringle was in the habit of ordering in the Jail or Hospital Fever, from a quarter to a half pint a day of the strong kinds of Wine, (which quantity would now be considered insufficient in many cases,) and of the Rhenish, or small French Wine, as much as a quart a day.

In the Low or Nervous Fevers, Dr. Gilchrist allowed a bottle a day, and Dr. Heysham gave as much as two bottles and a half in the space of twenty-four hours, in the Putrid Fever which appeared at Carlisle in 1781, and thinks that even more might sometimes be given with advantage.

In the last stage of the Jail Fever, Dr. Carmichael Smyth has given with advantage two bottles of Madeira a day, for several days together.

Upon the subject of quantity no precise directions can be given. In some of the above instances it may have been given in too large quantities, and in others not sufficient.

The strength may certainly be roused by powerful stimuli, used to a great degree, but it may be questioned whether the patient has been benefited, since we have seen this new excitement immediately followed by an inflammatory condition of the brain, or the excitability so much worn out, that no subsequent attempts could renew the powers of life.

Perhaps a pint a day may be generally sufficient, but upon this subject, no precise quantity can be specified.

The *choice of Wine* is not a matter of indifference. To obtain the medicinal effects of Wine, a preference is commonly given to *Port*, as being less disposed to acidity, and possessing a less degree of Spirit than Madeira. When this cannot be obtained, good old Madeira will be found to possess every quality which is necessary to excite action, and to supply the pabulum upon which this action is to be maintained.

Next to these is Sherry. As a general rule, it will be found advisable to allow the sick their favorite Wine.

When Wine cannot be procured, Cider, Porter, or Spirits, diluted with water, sweetened and acidulated, are tolerable substitutes. Dr. Cullen was of opinion, that the last mentioned compound and Opium, produced all the effects of Wine, but Opium does not support the pulse like Wine.

Besides Fevers, Wine is employed with much advantage in Tetanus. Dr. Rush, and several other American physicians, speak favorably of the practice.

Dr. Currie saw a patient cured of this disease in the Liverpool Infirmary, by drinking nearly a quarter cask of Wine.

To the valetudinary and infirm, it affords a wholesome and agreeable stimulus, and to the convalescent from acute diseases, the means of renovating their exhausted vigor.

Of the use of *Ardent Spirits*, I need not say much. They are seldom resorted to except in extreme cases, and it is such cases as will justify their use. Their stimulant operation is not sufficiently permanent, or capable of being regulated, and it is questionable whether the patients may not suffer more from the depression which follows the excitement they produce, than he can be benefited by the temporary elevation consequent on their use.

Poisonous operation of Ardent Spirits.

WHEN taken in large and poisonous doses, they produce all the effects of the narcotic poisons:—Insensibility, apoplectic stertor, labored and imperfect respiration, weak, frequent pulse, with paralysis and insensibility of the Iris.

Treatment—The administration of an Emetic.

If the stomach cannot be excited to action, then titillation of the throat should be practised—Warm water introduced into the stomach—The cold affusion—The use of the stomach pump—Ammonia as a stimulant, and to counteract the narcotism induced.

The degree of danger arising from Ardent Spirits, will be estimated, by the inirritability of the Iris, and the want of energy in the stomach to expel its contents. If this last can be excited, the patient will recover—but if it cannot, death is usually the consequence, since it is to be presumed that the stimulus has been so powerful as to bring on a fatal state of collapse, by which the powers of vitality are exhausted—and instances are not rare, of persons having fallen dead instantaneously, upon swallowing a large quantity of spirits.

Morbid appearances—engorgement of the vessels of the brain, and a quantity of serum in the lateral ventricles.

Family *Solanaceæ*—*Capsicum Annum*—Red Pepper.

Native of South America, but cultivated extensively in this country.

Fruit, an oblong pod.

Odor, aromatic.

Taste, hot and pungent.

Capsicum is a very active stimulus, differing in a very essential manner from the preceding, in not exciting a narcotic operation on the brain, and in being less injurious in its operation, than any other stimulus of the same activity.

Effects in small doses.

Effects in large doses.

It is employed chiefly as a condiment. It is added to various articles of food, either to improve their flavor, or, if difficult of digestion, to promote their assimilation, and to prevent flatulence. Much employed by the inhabitants of warm climates.

Its constitutional, not being in proportion to its local effects, it is not much employed by physicians as a general or diffusible stimulus, though much in repute with irregular practitioners, and the common people, for a great variety of purposes.

From the peculiarity of its operation, i. e. from the constitutional not being in proportion to the local effects, it is employed in cases and circumstances which would seemingly forbid its use, and to this only can we impute the impunity with which it is administered, in the excited states of the system.

Chemical History—

From this article, a peculiar substance has been obtained to which the term Capsicin has been applied. When pure it is tasteless, inodorous, and crystallizes in acicular fragments.

Ætherial Oil of Capsicum—

This oil possesses a most intolerable warmth and acrimony of taste, and concentrates all the stimulant properties of the pod. It is of a brilliant reddish color, has a peculiar odor and aromatic taste.

Preparation.

Diseases in which Capsicum is employed.

In Febrile diseases.

It is employed to support the strength of the patient.

It is continued in these cases until a general warmth takes place, which must be kept up as long as debility, or symptoms of congestion exist. It is a valuable auxiliary in these cases, and is much resorted to.

In some of the stages of *Dyspepsia*, employed as a Carminative.

In *Cynanche Maligna*—Taken internally and used as a gargle. The manner in which it is prepared is the following :

Two table-spoonsful of Cayenne Pepper, and two tea-spoonsful of Salt are to be beat up into a Paste, on which half a pint of boiling water is to be poured, and strained off when cold—an equal quantity of vinegar being added to the infusion, a table-spoonful every half hour, diluted with water, is a proper dose for an adult. Used also as a gargle.

Used in the form of a weak infusion, as a gargle in relaxed states of the throat.

In various diseases attended with diminished susceptibility of stomach, Capsicum is an exceedingly useful adjunct to other powerful remedies—the operation of which it promotes by raising the diminished

sensibility of this viscus, as in Cholera, Intermittents, the low forms of Fever, &c.

As a *Counter-Irritant*—It is a valuable addition to poultices and cataplasms, for renewing warmth, or exciting counter-irritation.

The Tincture may be employed for the same purpose.

Some individuals troubled with cold feet, have derived benefit by wearing socks dusted with Cayenne Pepper.

Family *Piperineæ*—*Piper Nigrum*—Black Pepper.

Natural History—

Properties—Stimulant and Carminative.

It is used as a condiment.

It is medicinally employed in checking nausea and vomiting, in removing hiccough, in attacks of retrocedent Gout, as a gargle in relaxation of the Uvula.

Extended to the treatment of Intermittent Fever.

May be taken in the state of powder, or the seeds swallowed whole, to the extent of v. to viii. twice a day.

The seeds are dipped in a solution of Gum Arabic, and afterwards in powdered Columbo to disguise them.

Seldom necessary to administer more than lxx. or lxxx. of these pills before a cure was effected.

Piperine, the alkaloid obtained from Black Pepper, is preferred. The dose is from one to four grains.

Valuable adjunct to Quinine.

When Piperine is used, it should be only such as is colored, and the deeper the color, the stronger it is.

When perfectly pure, or white, it is tasteless and inert.

It is often combined with Quinine. Half a grain of Piperine, and half a grain of Quinine, is equal to two grains of Quinine.

From Pepper an Oil has been obtained, which is called the *Oil of Black Pepper*.

It is employed in Fevers of a Typhoid type, and is also a valuable adjunct to Quinine in Intermittents.

One drop is equal to three grs. of Quinine.

It is recommended as a cheaper and more valuable addition to Quinine, than Piperine.

The Oil is separated from the Pepper by means of Æther and Alcohol.

Piper Cubeba, or *Cubebs*.

Natural History—

It resembles the common Black Pepper in size.

Taste, less pungent than Black Pepper.

It is principally known as a remedy in Gonorrhœa.

Mr. Broughton's experience with this article.

In fifty cases in which he employed it, there were five failures, five cases relieved, forty-one cured—the period varying from thirty-six to forty-eight hours, to a period less than a month—the average three weeks.

That it has advantages over the Balsam of Copaiva, in being admissible in the earliest and worst stages of the severest Gonorrhœa, without being productive of any inconvenience to the patient, or being attended with any injury to the functions of the stomach.

The time in which the cures were performed, also entitles it to a superiority.

Dose, 3 ss. to 3 ii. of the Powder.

3 ii. to 3 ss. of the Tincture.

If no beneficial effects follow, after the administration for two or three days, it should be omitted, and some other remedy employed.

We have employed this article alone without much advantage, and are better pleased with a combination of the Tincture or Powder with the Balsam of Copaiva, after inflammatory action has been subdued.

Sir Astley Cooper's formula :

Of the *modus operandi* of Cubebs in curing Gonorrhœa—

The powder is digested in the stomach, the volatile oil enters the circulation, stimulates the secretories of the kidneys, increases the secretions, and renders it less acrid and irritating to the bladder and urethra—at the same time, the urine being impregnated with the oil, the urethra is subjected to the specific impression of the medicine.

Cubebs contains an oil, upon which the efficacy of the article depends, in the proportion of 3 i. and a $\frac{1}{4}$ to a pound.

From the existence of this volatile oil, the effects of the powder are often unequal.

Precautions in using the powder—that it should be preserved in closely stopped bottles, and to be ground, or powdered, a few hours only before it is administered, so as to retain as much of the oil as possible.

The oil may be administered in diseases.

In drops, in the dose of x. to xx. three times a day, or in the form of mixture, as the Balsam has been directed.

The discovery of the oil an important one, as we have in many instances a remedy for Gonorrhœa, in as small a compass as we have for ague, in Arsenic or Quinine.

Cubebs has been objected to from its tendency to produce swelling of the Testicle.

After very frequent trials of this article, in the form of powder, and essential oil, we have only known of one case in which this effect was satisfactorily ascertained to have been produced.

In *Leucorrhœa* it has also been employed.

In *Chronic* affections of the bladder.

To the several modes mentioned of administering this article, we may state, that it has been given in the form of *Enema*.

Balsam of Copaiva has been employed in like manner, and reported to have cured some cases speedily and effectually.

The manner of preparing the enema is the following :

℞. Balsam Copaiva, 3 ii.

Mucilage, 3 iv.—mix for enema.

The second day, the quantity is doubled—the third day, 3 vi. of the

Balsam—the fourth day, 3 viii.—Laudanum is added to tranquillize the rectum, and allow of its retention.

Adulterations—

Adulterated with the other and cheaper kinds of Pepper.

It is mixed with powdered Pimento.

Cubebbs ought to be kept in the pulverized state in a well stopped phial, as its essential oil is volatile—and when kept in paper, the latter absorbs a large proportion of it.

DIVISION 13.

NARCOTICS.

DEFINITION of this Class—

Such substances as diminish the sensibility and irritability of the system, without occasioning any sensible evacuation.

This definition is objectionable, inasmuch as with the expression of some of the properties of these medicines, their stimulant operation is not included. Narcotics, though they have been considered by Dr. Cullen, and other writers Sedatives, are Stimulants, endowed with considerable activity, and great diversity of remedial operation.

Their general effects are, to increase the force and frequency of the pulse, to excite the operations both of the body and mind, giving to them increase of vigor, inducing hilarity and intoxication.

These symptoms are soon followed by those of diminished action, the pulse becomes slower, but is full and soft, the body is less sensible to impressions, respiration is more easy, pain and inordinate motion, if present, are alleviated and depressed—the mind becomes inactive, and finally sinks into sleep.

To these succeed debility, with lassitude, tremors, and oppression.

Such are the effects of a small dose. If the dose is *larger*, the symptoms of diminished sense and action are induced without much previous excitement—and if the quantity be still *larger*, delirium, paralysis, coma, and convulsions supervene, and death finally succeeds.

These are the general effects of Narcotics. They are diversified according to the article employed, and not only do they differ widely from each other in their effects upon the system, but the operation of each is very different at different times, according to age, habit of body, dose and use, and various other circumstances.

They all agree in one respect, which is their effect upon the functions of the Brain.

Though all of this class agree in operating upon the Brain, their effects are by no means uniform. Some affect in a peculiar manner the mental powers, and proportionably little the other functions of the body, (as a particular kind of mushroom and nitrous oxyde gas.) Opium

has the greatest tendency to induce sleep, green tea, on the contrary, to excite watchfulness. Alcohol and its combinations, which are by some considered Narcotics, excite also the actions of the heart and arteries, while others excite little or no action.

Opium constipates the bowels, while the *Hyosciamus* in allaying pain and irritation, has no such operation.

From the action of these substances on the Brain, does speedy dissolution follow the introduction of a large dose taken into the stomach? Some experiments of Mr. Brodie, illustrate the manner in which death takes place under these circumstances.

He found that by introducing Narcotic substances in a very concentrated state into a wound, or into the rectum of animals until insensibility was produced, and all the external signs of apparent death—yet by opening the thorax, and exposing the heart to view, it was found contracting with considerable force. He found also that by inflating the lungs, and keeping up artificial respiration, the actions of the heart could be continued for a considerable time.

He, therefore, concluded that death, under these circumstances, was owing to the respiration being affected, and at length ceasing.

The lungs are, therefore, more dependent upon nervous influence for the performance of their functions than the circulation, and it is through them, that the death of the heart takes place, and finally death of the body.

One of the means of recovering a patient from the poisonous operation of Narcotics, is the employment of artificial respiration, and this circumstance confirms the views taken by Mr. Brodie upon the operation of these substances, and the manner in which they prove destructive to the body.

For some experiments confirming these views, refer to Dr. Le Gallois's work, &c.

The impression of Narcotics upon the stomach, is extended by nervous communication with every part of the body.

Are the Narcotics Stimulating, or Sedative in their operation?

Dr. Cullen was of the opinion that they were Sedative in their operation.

Dr. Brown maintained that they were Stimulants, surpassing all others in the diffusibility of their action, and that the debility which ensued was the result of this increased action.

This opinion is supported by the known operation of these substances. They are all referable to excitement, which in proportion as it is strong and diffusible, is at the same time transient in its duration, and soon followed by symptoms of diminished action.

If the dose is large, the Stimulant effect is so rapid as to be hardly perceptible, and hence the Sedative, or depressing effects only appear. A dose still larger puts an end to life, without any symptoms of previous excitement.

How is this explained? In the same manner as when speaking of the poisonous operation of ardent spirits. A collapse of the system takes place from an engorgement of the vessels of the brain, with an effusion of Serum in the Lateral Ventricles.

The conclusion, therefore, on this subject would be, that Narcotics are directly Stimulant and indirectly Sedative.

Reasons for considering the Narcotics Sedatives.

One of the arguments advanced, is derived from their soporific effects, or tendency to induce sleep.

But how is sleep induced? Can it not be brought on by any other than a direct Sedative operation? or rather is it not in common, the effect of positive and direct Stimulating operations?

Dr. Rush, in considering the causes of sleep, says:—Natural sleep is brought on by a diminution of the excitement and excitability, by the continual application of Stimuli, which act upon the body in its waking state.

He then goes on to state, that sleep may be brought on at an earlier hour by an increase of the force of such Stimuli, as a long ride or walk, unusual exercise of the understanding, the action of strong passions or emotions, &c.

Artificial sleep, he then adds, may be induced at any time by certain stimulating substances, as Opium, &c.

Opium, in the production of sleep, operates in the same manner as the natural stimuli above mentioned—they all wear out the excitability, and bring on that state of indirect debility which is followed by sleep. If these medicines were directly sedative, they would bring on sleep at all times, and under all circumstances, and the sooner and more perfect, the stronger they are, or the greater the quantity.

Instead of this, if you give a man ready to drop asleep from fatigue and watching, a dose of any soporific medicine, it will put off sleep for some time. Here then the Stimulus of the Narcotic medicine seems to have the effect of putting off sleep as long as the sensibility and excitability of the body is sufficient to support their effects.

A second reason for supposing Narcotics Sedatives, is derived from their power of relieving pain.

The operation of Narcotics in relieving pain does not depend upon their rendering the brain torpid and insensible, but producing an excitement in the brain different from the painful impression, and thus relief is obtained. That it is not by any Sedative operation we know, from the Narcotics exciting pain and inflammation when applied to any tender part, as the globe of the eye, or the surface of a wound. We know, too, that these medicines are contra-indicated in diseases where pain is a consequence of high action, and are only employed after the activity of the circulation has been reduced. If they exerted any sedative operation, why are they not attended in such cases with the same feelings of relief which follows blood-letting when properly and judiciously prescribed? The most satisfactory explanation is established upon the stimulating effect of these medicines.

A third proof of the Stimulating operation of Narcotics, is derived from their exhilarating, and producing intoxication.

I have already spoken of the use of Opium in Eastern countries, where wine and liquors are forbid, for the production of these effects—and that it is often had recourse to, to induce mirth, to dispel melancholy, and to relieve the mind of its troubles and disappointments.

With the views we have given you, of the effects and operations of Narcotics, they evidently become in practice remedies of great importance. The proper administration of them, calls for much both of experience and discrimination on the part of the practitioner.

They may be so employed, as to produce a stimulant impression, or a state of depression may be occasioned, without any previous excitement being apparent. To obtain the stimulant effects, they must be given in small doses frequently repeated, and thus the excitement they produce is kept up and sustained.

When the design is to mitigate pain, to procure sleep, to relieve irritation, to deaden sensibility, they should be given in full doses, and at distant intervals.

Rules in the administration of Narcotics, furnished from Chapman's Therapeutics:

1. We should begin with small doses, in order to test their action upon the system. These may soon be increased, as there is no class of medicines to which the system becomes sooner habituated, or which lose their effect more quickly by repetition than the present.

2. It is wrong to combine many of these articles in one prescription, or to use any number of them at one time. The importance of this rule will be obvious from the preceding observations. The system becoming habituated to one stimulus, we renew the first impressions by changing it for another, and in this manner keep in our employment a corps of reserve.

3. It is proper to change the part of the body to which we apply stimulants, as sensibility will be left in one place to a remedy, when completely exhausted in another. The stomach becoming enfeebled, we can have recourse to the skin, and from this last to the rectum—it being observed that impressions may be excited in the system by applications to this part of the Alimentary canal, when their operation has in a great measure ceased elsewhere.

4. The fourth rule in the employment of stimuli, is to endeavor to graduate the strength of the stimulus, to the state of excitability. This is a rule of much importance in practice, and from attention to which very happy results will often be obtained. In all cases of disease the strength of the stimulant should be proportioned to the excitability of the system, as without it premature depression will be produced, and the system be exhausted by the very means which should have preserved it.

PARTICULAR NARCOTICS.

FAMILY *Papaveraceæ*—*Papaver Somniferum*, or *Poppy*, *Opium*.

Opium is the most valuable of the Narcotics.

It is obtained from the above plant, which grows in the four quarters of the globe.

It is chiefly cultivated in Asia, also in Africa, particularly about Thebes in Upper Egypt, hence called Thebaïc Opium.

Description of the plant—

The method pursued in obtaining the opium from the pods of the plant, is the following :

At the time the pods are nearly ripe, incisions are made into them in the evening, and from them there oozes out a considerable quantity of a milky fluid. This fluid is scraped off early the next morning from the wounds, with an iron scoop, and worked in an earthen pot for a long time in the sun, until it becomes of a considerable consistence. This is then made into lumps of a globular form, which are covered with the leaves of the poppy, so as to prevent their running or sticking together.

The operation is repeated three times, but the produce gradually decreases in quantity, nor is it of so good a quality.

Opium is prepared in many places, but there is commonly known in commerce the following :—The Turkey, East India, Egyptian, and European Opium.

Qualities of the best Opium—

Tenacious, possessing considerable tenacity.

Fracture, shining when broken.

Color, dark brown.

Taste, nauseous, bitter, acrid.

Smell, disagreeable, heavy.

Adulterations—Frequently found in our markets mixed with leaves, stalks, seeds, &c.—and they are worked in when the opium is in a soft and recent state, for the purpose of increasing its weight and consistence. The quantity of these inert substances is frequently so great, that an ounce yields only from four and a half, to five and six drachms, of soluble and extractive matter.

It is adulterated with various other substances—with extract of liquorice, when the specimen is brittle and tastes sweet—sometimes with Gum Arabic, or Tragacanth. It is mixed with sand and gravel, which is very common in order to increase its weight, and the Opium feels gritty between the teeth.

The East India Opium is inferior to the Turkey, and yields less Morphine. The quality of this article has been much improved, and specimens of Bengal Opium have been very superior.

Egyptian Opium closely resembles the Turkey, and was formerly much esteemed.

The European Opium is generally purer than the Eastern, and from this circumstance, a larger per centage of Morphine has been obtained.

Opium might be cultivated in the Carolinas and Georgia, and that to a considerable extent.

The consumption of Opium is much greater than would be supposed. It is estimated that 80,000 pounds are imported into London. It is consumed as a medicine, and in a still greater degree in chewing and smoking. This pernicious practice is rapidly increasing among all classes of the Chinese, and to some extent in Europe, and this country, attended with the most deleterious consequences to the health, morals and welfare of its votaries.

Productiveness of the Poppy—It is easily raised, and it is estimated that an acre will yield twenty-four pounds of Opium, and forty pounds of seed, from which a good deal of fixed oil is obtained.

Chemical analysis—

Few articles have undergone a more careful and complete analysis than the present, for which we are indebted to the researches of modern chemists.

The analysis of Opium is as follows :

1. A Volatile Oil, on which the odor peculiar to good and well prepared Opium depends.

2. Gum, including Bassorine.

3. Extractive.

4. Resin.

5. Caoutchouc.

6. Narceine or Narceina.

7. Meconine.

8. Morphine in combination with Meconic Acid.

9. Narcotina.

10. Codeine.

11. Thebaina.

12. Pseudo Morphia.

13. Opianic Acid.

14. Sulphates of Lime and Potash.

15. A brown acid—Lignine.

Upon a few of these articles we shall make some remarks.

The *Resin* was thought to be the most important part of Opium, until modern discoveries were made. They commenced in 1803, when Derosne discovered the Narcotina.

The *Meconic Acid* was discovered by M. Serturnier, a German apothecary, in 1804, and is in its pure state a colorless solid, crystallizing in long needles, volatile and soluble in water and alcohol. It is an inert substance, its only apparent use is to give solubility to Morphia. It is separated from Morphia by Magnesia. It has been reported of late years, to be an antidote to Corrosive Sublimate, taken as a poison.

Morphia—The existence of this substance was made known in 1804, by Serturnier, though perhaps previously seen by Derosne and Seguin.

Preparation.

In appearance, it is in the form of white crystals, insoluble in cold water, soluble in alcohol, insoluble in æther. It is called Morphia, from Morpheus, the god of sleep, and in it the anodyne property of Opium resides.

Morphia when pure is not soluble, and unless it meets with an acid in the stomach, it is inert. It is converted into a soluble salt by various acids—as the Acetic, Sulphuric, Muriatic, and others, with which salts are made.

Narcotine, discovered by Derosne in 1803.

It is a white inodorous substance, crystallizing in prisms, soluble in æther, and separated by it from Morphia.

Preparation.

When first discovered it was said to be the stimulant principle of Opium, but at present it is known, as the principle upon which the stupefying effects of Opium depend.

It is not applicable to any decided remedial purpose—of late it has been proposed as a remedy in the East Indies for Intermittent Fever, from its bitterness.

Narceine, discovered in 1832 by Pelletier.

It is a white inodorous solid, crystallizes in long fine silky needles, and is thought to be inert, or its action is unknown.

It is obtained from the fluid which remains after the Morphia and Narcotina have been separated, by adding to it Muriate of Baryta, so as to neutralize all the Meconic Acid.

Meconine, discovered in 1826, and again in 1830.

It appears as a white crystalline, odorless solid.

Its properties not well determined.

It is obtained from the æther used to procure the Narcotina. It is soluble in hot water, and crystallizes on cooling.

Codeine is prepared from the solution, from which Morphine has been separated.

It appears to possess the *exciting properties* of Opium, and to exert a specific influence on the nerves of the Ganglionic system, but exercises little on the brain and spinal marrow—chiefly useful in diseases of the nervous plexus.

Thebaine acts like Brucia or Strychnia, and causes Tetanus and death in a few moments, when injected in the quantity of a grain into the jugular vein of a dog.

Opianic acid is obtained from Narcotine by decomposition. It is remarkable for its affinity for ammonia.

Pseudo Morphine.—Pelletier thinks, that this principle must be some combination of Morphia, in which the substance has lost its poisonous properties.

From these discoveries it would appear that the analysis of Opium is complete—That all the active principles have been separated, and made tangible we may say.

The Poppy has been cultivated from very remote antiquity—its properties being known nine hundred years before the Christian era.

Effects of Opium upon the different functions of the body.

1. Upon the Animal Functions.

In its action it is directed in a great degree to the brain and nervous system. It excites the energies of the mind, produces hilarity and much joyousness of heart, excites to deeds of bold and adventurous daring.

In moderate doses, the pleasing sensations are of so calming a nature, that though persons do not sleep, they often enjoy so perfect an indolence and quiet, that no happiness can exceed the charms of this agreeable ecstasy. It is seldom we have an opportunity of witnessing the very exciting effects of Opium given in large doses. These effects are not too strongly depicted, if we judge of the descriptions of travel-

lers among the Eastern nations. Among the Turks, a drachm is the ordinary dose, and they are said to take this quantity when they go to battle, or undertake any affair that requires vigor and strength.

Dr. Russell's statement of the immediate effects he observed it to have upon those who took it habitually.

The effects of Opium in quickening the intellectual operations, have been already dwelt upon under the head of Diaphoretics.

To these symptoms of increased excitement, languor and debility succeeds, marked by dullness of body and mind, delirium and intoxication, and sleep gradually succeeds.

In very large doses but little excitement is produced—an apoplectic condition of the brain is induced, with all its attendant symptoms.

2. Upon the Vital Functions.

Opium is stimulating upon them, increasing the contractions of the heart and arteries, rendering the pulsations quicker and stronger, followed by lowness of spirits, difficulty of breathing, &c.

3. Upon the Natural Functions.

When a dose of Laudanum is given upon a full stomach, it commonly occasions nausea from the beginning, which continues until it is rejected with the contents of the stomach.

The secretions of the stomach and intestines are diminished, as well as those of the mouth and fauces; hence their dryness, and the sense of thirst which attends the use of anodynes.

There is considerable diminution of the biliary secretion, hence the fæces after the use of Opium are not unfrequently clay colored.

The excretions are also diminished, except the cutaneous, which is often increased, with a pruritus or itching of the surface.

The operations of Opium will be considered more in detail, when treating of the diseases to which it is applicable.

The odorous as well as active principles of Opium are absorbed. The odor is sometimes recognized in the secretions and excretions.

It has been detected in the breath, also in the urine and perspiration—Narcotism has been induced in an infant, in consequence of having sucked a nurse, who had previously swallowed a dose of Laudanum to relieve cramp of the stomach.

The great value of Opium in diseases.

We employ it to fulfill many indications. We exhibit it under certain circumstances to mitigate pain—to allay spasm—to promote sleep—to relieve nervous irritation—to produce perspiration—to check profuse discharges from the bronchial and gastro-intestinal membranes.

Diseases in which Opium has been recommended.

1. In *Continued Fevers*—Where symptoms of an inflammatory nature have passed off, and debility has made much progress—where there is delirium, attended with subsultus tendinum, with watchfulness, a small, frequent, and weak pulse, Opium given in *small doses*, in conjunction with other remedies, so as to obtain its stimulating operation, is one of our best medicines.

In *Intermittents* it prevents the recurrence of the cold stage. In the

hot stage, as recommended by Dr. Lind, it diminishes the violence of the paroxysm, lessens the headache, heat of surface, and produces perspiration. It also renders the constitution more susceptible to the operation of bark, and prevents visceral obstructions.

In *Inflammatory diseases* Opium has long been regarded as an objectionable remedy, but it is one we frequently resort to, either for the purpose of palliating particular symptoms, or even as a powerful auxiliary antiphlogistic remedy. The statement of Dr. Young that Opium was improper in all those diseases in which bleeding was necessary, is, therefore, by no means correct in a very considerable number of instances.

In *Pneumonia*—In the beginning of the disease, before bleeding and blistering have produced some remission of the pain, and the difficulty of breathing, opiates have a very bad effect, by increasing the inflammatory symptoms. But in a more advanced state, when by copious venesection we have blanched the patient, without completely subduing the disease, a large dose of Opium may be given, not only with safety, but with the greatest benefit. It will generally allay that irritability of the system, vascular and nervous, which seems to renew inflammation from time to time, while bleeding becomes less adapted to its final reduction. Many cases may be cited of the beneficial effects of this practice. In Inflammatory cases it is used with advantage combined with Ipecacuanha, Calomel, or the Antimonial preparations.

It is unnecessary to extend the application of this remedy to diseases, as its importance in various affections has been fully referred to, and insisted upon, in the foregoing lectures.

We may remark that it is employed often with advantage in
Asthmatic affections.

In Catarrhs.

In Phthisis Pulmonalis.

In Rhenumatism.

In Gout.

In the Phlegmasiæ of the mucous and serous membranes.

Dysentery.

Diarrhœa.

In Cholera Morbus.

In Bilious Colic.

In some forms of Dyspepsia.

In Hæmorrhages.

In Mania.

In Delirium Tremens.

In Syphilis.

Besides these diseases, there are a host of Chronical affections, in which Opium by lessening the sufferings of the patient, allows the steady adherence to a proper plan of treatment, and by soothing his distresses, admits of regular progressive steps towards a cure, and begets confidence in the exertions of the physician. It is, in our opinion, not had recourse to as often as may be useful, and from much practice

with it, we entertain less dread of its use, than many of our professional brethren.

Of the External application of Opium.

Upon this subject there exists a difference of opinion, some affirming that thus applied it produces no constitutional impression, and by others that it is almost as efficacious as when taken in the stomach. Truth will be found with neither.

Dr. Cullen advocated its external use, and maintained that it operated not only on the part to which it was applied, but that it operated on the adjoining nerves, in diminishing their sensibility and relieving pain. Judging from the effects of the local application, we must conclude that it exerts an active operation on the surface, and that this is often extended to the sensorium commune.

Effects of Laudanum applied by friction.

Effects of Pledgets soaked in Laudanum.

When the stomach rejects the exhibition of Laudanum, it may be applied along the spine by frictions.

By the Italian physicians, however, the external application of Opium or Laudanum, is more highly recommended, and employed either in the form of ointment, or frictions with Laudanum, the sleep produced by it, though not proportioned either in intensity or duration to a dose taken internally, yet a state of calmness always follows its use.

We have experienced very decided benefit from the use of Opium, applied externally in Tetanus, where the whole skin of the sole of the foot had been removed, applied in the form of ointment prepared in the following proportions:

℞. Powdered Extract of Opium, 3i.

Simple Cerate, 3i.—m. for an ointment.

Opiate Enema—Preparation.

Useful in allaying irritation of the bladder, uterus and rectum, and other parts of the system.

The quantity of Opium used in the form of glyster should be treble of that taken by the mouth.

Opium suppository.

Morbid Effects of Opium.

Symptoms which follow its use in large doses.

The symptoms call for immediate relief, and when the patient has the power of swallowing, an emetic of the Sulphate of Zinc, or Copper, should be resorted to.

After vomiting, the patient should be carried about from one place to another, irritating applications be made to the feet—strong coffee, or lemon juice, or vinegar, be frequently offered—Ammonia should be employed in common with the other remedies, to overcome the narcotism induced by the Laudanum.

Should deglutition be interrupted, and a state of great insensibility,

the *cold affusion* should be practised, by pouring water over the head and shoulders to rouse the patient, and an emetic administered.

Practice in India.

Various antidotes have been proposed to the poisonous operation of Opium. These are—

Vinegar and the vegetable acids.

Chlorine.

Coffee.

They have no right to be considered antidotes, and they should not be administered before the poison is expelled, as they would dilute it, and allow of a more free absorption—but administered afterwards, they correct the Narcotism which has been induced.

If these means fail, we should resort to the stomach pump.

The instrument described, and the manner of using it.

Another method proposed, for recovering persons from the poisonous effects of Opium, is *artificial respiration*.

Cases of recovery by this means related.

Opium acts chiefly upon the respiratory and sympathetic ganglia. If respiration can be sustained by artificial means, until the sedative influence of the Opium can be subdued, by the recuperative energies of the system, life may be preserved.

Another method of treatment has been recommended by *means of Emetics per anum*.

Illustrated by the recital of a case.

Doses of Opium—

They will be subject to great variation, depending upon the age and habits of the patient, the nature of the disease, and the particular object for which we wish to employ it.

The medium dose will be gr. i. to an adult, which is equivalent to xxv. gtts. of Laudanum.

But it will be safe and proper to give more, according to the disease and the condition of the patient. Some diseases, as Tetanus, Hydrophobia, Mania, Gout in the stomach, &c., requiring very large doses.

It will be safe always to begin with a small dose, and to augment it to the requisite extent, remembering that the degree of pain should be the measure by which we are to be governed, in the administration of this medicine. The free use of Opium in some diseases of more frequent occurrence, may be regarded among the most valuable improvements in medicine.

Where large doses are required, as in scrofulous affections, consumption, cancer, &c., it would be better to give it united with other Narcotics, than to employ the article singly—for to repeat what has so often been urged, it is with the Narcotics, as with some other medicines, two or more joined together in different proportions, often produce a better effect than any one of them, exhibited alone, in a double quantity.

Doses of Opium—

For a person between the years of five and ten, the quantity contained in from

v. to x. gtts.

From one to two years,

iv. to v. gtts.

For a child three years old,

$\frac{1}{2}$ to 1 gtt.

No medicine loses its power by repetition sooner, and from this circumstance the quantity is often augmented to a considerable degree. The extent to which it has been given is incredible, but it shows the extraordinary power of the system in accommodating itself to the most deleterious substances.

The long continued use of Opium produces effects similar to those which follow the action of ardent or vinous spirits. In their good and evil effects they are nearly allied. Thus Platerus affirms that wine is Nareotic, and Sydenham that Opium is the best cordial in nature.

The habitual use of Opium greatly impairs the constitution—the persons who accustom themselves to it, can by no means live without it, and are feeble and weak; they are usually thin, are of a yellow complexion, and look much older than they really are. This deleterious practice lays the foundation of a number of distressing feelings, usually termed nervous, with paleness, emaciation, an apathy equally of body and mind, and premature death.

The officinal preparations of Opium—

Opium gives out its active principles to several menstrua—as alcohol or proof spirit, wine, vinegar, water, &c.

With alcohol is formed the preparation so much in use called Laudanum.

This is one of the best preparations. Twenty-five drops are equivalent to one grain of Opium.

Paregoric Elixir—Preparation.

Here the Opium gets an agreeable flavor from the camphor and oil of aniseed, and is more stimulating. It is also less unpleasant, is more safe, and is much employed in the diseases of children.

3i. of Paregoric is equivalent to vi. m. of Laudanum.

3 ss. of Paregoric to 1 gr. of Opium.

With wine, preparations have been made, but the menstruum is objectionable.

Instead of it, vinegar is employed, and with it is prepared the *Lancaster* or *Quaker's* drop. It consists of a solution of Opium in vinegar, to which is added nutmeg and other ingredients. By this combination, the acetate of morphine is formed.

This preparation has the advantage of producing sleep without those distressing consequences which in some constitutions follow the alcoholic solution. For the formula, vide Chapman's Therapeutics.

Denarcotised Laudanum—Preparation—By digesting Opium in sulphuric ether, by which the Nareotine is extracted, and to this Denarcotised Opium diluted alcohol is added. The Tincture thus prepared is useful in delicate and nervous habits, in whom the ordinary preparations produce distressing effects upon the head and stomach. A lady in whom it had been employed, and who had always suffered from the distressing operation of this article upon the nervous system, called it the "Divine Tincture of Opium."

Denarcotised Acidulous Tincture of Opium—Prepared as follows:

℞. Denarcotised Opium, 3i.

Spirits of Wine, 3 viii.

Strong Acetic Acid, 3 ii.
 Water, 3 vi.—digest for seven days
 and filter.

This preparation is preferred to Laudanum or the Black Drop. It has the following advantages :—Contains no Narcotine, possesses the Acetic Acid thus increasing its calming effects, and forming the Acetate of Morphine. It is, further, a more uniform preparation than the Black Drop.

Salts of Opium—

Morphine, in its pure state, is by no means so active as when combined with acids. Thus combined, it manifests its powers sooner, and with more energy in consequence of their greater solubility.

Acetate of Morphine.

Properties—

Color, white.

Smell, inodorous.

Taste, bitter—very soluble in water.

Dose, the $\frac{1}{8}$ to a $\frac{1}{4}$ of a grain, given in pill, or dissolved in water, or taken in syrup.

Sulphate of Morphine—

Is the next most active salt, and is employed where patients are accustomed to the use of the acetate.

Why multiply the salts of Morphine ?

By varying the salts of alkaline medicines, their action may be kept up longer, without increasing the dose too considerably.

This salt is preferred by some to the acetate.

Sulphate of Quinine sometimes substituted for this salt—how to detect the adulteration.

Citrate of Morphine, supposed to act more speedily and powerfully, but not so permanent as Opium.

Narcotine—

Of this other elementary substance existing in Opium, nothing is known satisfactory. It seems to be much less active than Morphine, requiring to be given in larger doses. It is Narcotic in its effects, and to it is attributed the pruritus, or itching, which in some constitutions follow the use of Opium.

It has been recommended as a substitute for Quinine.

Dose, 1 to 5 grs.

Sub-epidermic Practice.

To the advantages already detailed from the employment of the active principles of vegetable substances as therapeutic agents, it may be added, that they may be introduced into the system, through the medium of the skin, in sufficient quantities to affect the constitution.

It may be resorted to, where the stomach is so irritable as to reject every thing in the way of medicine. The practice consists in removing the cuticle by means of a blister, and applying the salt to the surface. Morphine has been so used in Rheumatism, Sciatica, Neuralgia.

Water is the last of the solvents of Opium which is employed, but it is a very imperfect one, and can scarcely be used with advantage.

Opium is sometimes employed in the solid form, and is used whenever it is desirable to operate slowly, or to act upon the stomach and intestinal canal, as in Colic and Diarrhœa.

We have thus completed what is most necessary in the history of this valuable article, upon which Sydenham pronounced the following eulogium :—*Ita nectarium est Opium, in hominis periti manu, ut sine illo, manca sit, ac claudicet medicina.*

Which translated means—This medicine is so necessary an instrument in the hands of a skilful person, that the art of physic would be defective, and imperfect without it, and it may be added, that whoever is acquainted with its virtues, and manner of using it, will perform greater things, than might reasonably be expected from any single medicine.

Our description of the Narcotics, it might seem, would terminate with this article—but there are cases in which other articles are to be preferred to Opium, as for example—

Hyosciamus in affections of the Head.

Belladonna as a local application.

Cicuta in diseases of some particular parts.

Digitalis for controlling the circulation.

It is, therefore, important and necessary, that we should prosecute the particular articles included under the Narcotics, as their particular and more peculiar uses will be more fully brought before you:

Family *Synanthereæ*—*Lactuca Sativa* and *Virosa*—*Garden Lettuce*—*Lactucarium*—*Thrydace*—*Lettuce Opium*.

The Lettuce Opium is obtained from the flower stems of the above plants—Preparation.

It possesses anodyne properties, but in a less degree than Opium. It is, therefore, well adapted to persons who from Idiosyncrasy, or delicacy of habit, cannot employ Opium without experiencing distressing consequences.

The anodyne properties of the Lettuce have been long known—spoken of by Galen and Celsus, and referred to in the fables of Antiquity.

The Narcotic principle of *Lactucarium* has not yet been discovered.

Physical properties—

It is darker than Opium.

The taste and odor similar to Opium.

It is deliquescent.

Dose, from ii. to iv. grs., gradually increased, and given in the form of pills.

Family *Solanææ*—*Hyosciamus Niger*, or *Black Henbane*.—This plant is a native of Europe, but has been naturalized in this country.

Description of the plant—

The whole plant is glaucous, hairy, glutinous, has a fetid smell, and a mucilaginous taste.

Every part of the plant is active, the roots more so than the leaves.

It is very succulent, the juice existing in large quantity, which when expressed, and subjected to evaporation, forms the Extract of the shops.

The roots are fusiform like the carrot, and from this circumstance accidents arise from the use of it, very poisonous symptoms being produced from it.

It bears a considerable analogy to Opium.

Effects of this article in a moderate dose.

Do. in a dose still larger, and

Do. in a still larger dose.

Medical properties and peculiarities—

Hyosciamus is inferior to Opium where we wish to alleviate pain, to promote sleep, to procure rest, and to obviate spasm.

Yet there are occasions when it is preferable to Opium, as when Opium causes headache, or other distressing cerebral symptoms, or when it occasions costiveness.

It is employed in various diseases of the nervous character—as *Mania*, *Spasmodic Asthma*, *Hysteria*—used in other diseases, as *Colic*, *Colica Pictonum*, *Rheumatism*, *Puerperal Complaints*.

Externally employed as a cataplasm in various local diseases, as in *Scirrhus* and *Cancerous affections*, and in *Scrofulous ulcerations*.

Dose of the powdered leaves, i. to ii. grs.

Do. of the Extract, i. gr. increased to ℥i. or 3ss. in the day.

Same family—*Datura Stramonium*—*Thorn Apple*, *Stink Weed*, *Jamestown Weed*.

Description of the plant—

Properties—of a Narcotic character, and exhibits all the effects of this class in a considerable degree.

Sensible qualities—

Odor, strong, heavy, disagreeable.

Taste, nauseous and bitter.

Effects upon the system—Peculiarities.

In small, but repeated doses, it diminishes sensibility, and thereby frequently alleviates pain.

It does not affect the pulse, and it has no tendency to produce costiveness, but rather relaxation. Though it allays pain, it does not usually produce sleep.

In larger doses, it causes thirst, dryness of the throat, nausea, giddiness, dilatation of the pupil, headache, disturbance of the cerebral functions.

In fatal doses, an augmentation of all these symptoms, with delirium, convulsions and death.

Being thus powerful, it may prove a remedy of importance, and a useful agent in the hands of physicians.

Introduced to our notice by Baron Storck.

Diseases in which it has been recommended—

In *Mania*, *Epilepsy*, *Asthma*—used internally, and smoking the dried root, leaves, or flowers.

More particularly celebrated in certain *Chronic* diseases, the violent pains of which it is said to lessen, more than any other Narcotic. In

these cases it lessens sensibility, relaxes the bowels, and exerts little soporific effect, except that produced by the succession of ease after pain. These complaints are—*Chronic Rheumatism, Tic Doloureux, Sciatica*, &c.

In *Chronic Rheumatism*, the testimony in its favor is considerable. When the pulse is quick, the joints much swollen, with pain upon being moved, it is used internally, and as an embrocation.

In *Sciatica*, in *Syphilitic pains*, in *Scrofulous, Venereal*, and ill-conditioned ulcers.

In most of these cases we have employed it, but with effects inferior to Opium, and, therefore, prefer that article. But when there are particular idiosyncrasies, forbidding the use of Opium, or its preparations, we employ the Stramonium.

As an external application—The juice boiled in lard is a useful application to *Inflammatory tumors, scalds and burns*—also to irritable ulcers, with thickened edges, and a sanious discharge—improving the character of the discharge.

In *Rheumatic pains*—

The leaves steeped in brandy, is used as an embrocation, or boiled in milk, in similar pains, and in gout.

In *painful Hemorrhoidal Tumors*, the Ointment of Stramonium, united with that of the Acetate of Lead, is usefully applied.

Forms of administration—

Powdered leaves and seeds, Inspissated Juice or Extract, Tincture and Ointment.

Preparation of the Inspissated Juice or Extract.

Do. of the Extract from the Seeds.

Do. of the Tincture.

Do. of the Ointment.

Dose of the Leaves, gr. 1.

Do. of the Seeds, gr. ss.

Do. of the Extract of the Leaves, gr. 1.

Do. of the Extract of the Seeds, gr. $\frac{1}{2}$.

Do. of the Tincture, gtt. xx.

Poisoning from the Pods—

Symptoms—Dilatation of the pupils of the eyes, vertigo, delirium, tremor, or torpor, and loss of sensibility, slow pulse, the eyes fixed, and an expression of great wildness—symptoms coming on suddenly, we may generally suspect that some deleterious substance has been taken—our suspicions may often justly be directed to this article.

Treatment—An Emetic, followed by Cathartics, and other means to evacuate the Alimentary Canal—Castor Oil one of the best, as it may be given to any extent, and frequently repeated, without any bad effects.

Other means may be resorted to, such as have been mentioned, when an overdose of Laudanum has been taken.

The term Daturine has been given to the active principle of the plant.

Family *Solanee*—*Atropa Belladonna*—*Deadly Nightshade*—From Atropos, one of the evil destinies.

It was long said to be the most powerful of the Narcotics.

It is a native of Europe, growing in great abundance in Italy—It flourishes in shady places, and is cultivated in gardens, though to little extent in this country.

Description of the plant—

The whole plant is possessed of poisonous properties of the Narcotic character, and the berries which it bears resembling cherries, furnish us with many instances of their fatal effects, particularly upon children, who are readily tempted to eat them, by their alluring appearance and sweet taste—instances not unfrequently occur. Symptoms similar to those of the Narcotico-acrid poisons, acting not only upon the stomach, but it enters the circulation, and exerts different degrees of energy upon the brain, heart, and Alimentary canal.

Application to diseases—

The leaves were first employed to discuss *Scirrhus* and *Cancerous Tumors*, also as an application to ill-conditioned ulcers—Only useful in these cases as a palliative.

Has been recommended in the Neuroses, as *Epilepsy*, *Chorea*, *Tetanus*, &c., but it is not very efficacious in these cases.

In *Mania* its utility has been much commended, but it is now seldom or never resorted to.

To relieve *Rigidity* and *Spasmodic contraction* of the os uteri. Applied to the part by friction.

In *Hooping-cough*, often fails to give relief.

Belladonna has been recommended in the complaints of the eyes. It enables the surgeon to determine, whether the Iris adheres to the capsule of the Lens or not, and also to ascertain the state of the Lens.

It proves a palliative remedy in common Cataract, by causing such dilatation of the pupil, as to allow more light to be admitted to the Retina. The Tincture of the article is dropped upon the eye-ball, and in a short time dilatation of the pupil takes place.

The application of Belladonna facilitates the operation for Cataract by extraction, allowing the Lens to pass through the incision made, and removing the delay sometimes occasioned by the contraction of the Iris.

The Belladonna may be made to produce the effect of dilating the pupil, by anointing the eye-lids with a little of the extract made soft with water.

The Belladonna has been recommended as a prophylactic against Scarlet Fever. Much testimony both in Europe and this country favorable to its influence.

Our opinions, and practice favorable to the employment of this article as a preventive of Scarlatina, administered in minute doses.

The activity of Belladonna depends upon a principle to which the term Atropia has been applied.

Dose of the Extract, $\frac{1}{4}$ of a grain.

Family *Apiaceæ*—*Conium Maculatum*—*Cicuta*, or *Hemlock*.

This plant is nearly allied to *Hyosciamus*.

It is a native of Europe, but common in this country, &c.

Description of the plant—

The distinguishing characters of this plant are its strong smell, spotted stems, and parsley leaves.

The whole plant is possessed of active properties, readily yielding a quantity of juice on pressure, which when evaporated forms the extract of the shops.

The properties of this plant have been known from very remote antiquity, and is supposed to have been the celebrated Athenian State poison.

The use of Hemlock was principally confined to external applications, until it was introduced by Baron Storek as an internal remedy for *Scirrhus* and *Cancer*, and a host too numerous to mention of other chronic affections.

The sanguine expectations which practitioners were led to entertain of the virtues of this article, have not been realized. Though found useful in several formidable and intractable diseases, as *Scirrhus* and *Cancer*, its reputation rests upon a very slender foundation as a remedy, in the cure of these diseases—though useful as a palliative—Alibert's experience in the use of it in the Hospital of St. Louis, in Paris.

It has advantages over opium, that in its most favorable operation it alleviates pain, without occasioning sickness or headache, and often without producing a greater tendency to sleep, than what belongs to the mere effect of the suspension of pain, in harassing and chronic diseases.

It is employed Externally for the same purpose, in the form of poultice, or warm fomentation. The good effects of cataplasms from fresh vegetables seem to depend in part upon the Narcotic quality of the plant, and partly to the soothing influence which is exercised by fresh vegetables.

In *Scrofula*, in which disease Fothergill, and many others have praised it, it seems to be occasionally useful as a palliative in irritable constitutions. It allays the pain, and assists in reducing the volume of enlarged lymphatic glands, and in scrofulous ulcerations it improves the quality of the discharge, and disposes the ulcers to heal.

In *Scrofulous Ophthalmia* it has been employed, after other remedies had failed.

It is the practice to commence with small doses, and to increase gradually until relief is experienced.

In Ulcerations of the *secondary stages of Syphilis*, and in *Ulcers* of a morbidly irritated character, it has been used in large doses, and it would appear to be a remedy of advantage.

In some other forms of disease, as *Asthma*, *Chronic Rheumatism* and *Pertussis*, it has been recommended, but its efficacy is not very remarkable.

In the *Neuroses* it has been much celebrated.

In *Tic Douloureux*, cases have been published, in which relief has been obtained.

The practice pursued is the following:—It is to begin with a grain of the extract, and to increase to v. grs. for the second and third doses—afterwards to add v. grs. to every dose, until a full effect upon the system was obtained.

In *Glandular Obstructions* it has been recommended.

In *Jaundice*, useful by its relaxing effects, and promoting the passage of Biliary Calculi. Has advantages over opium.

In *Amenorrhœa*, but with effects not very decided.

From the influence which it exerts upon the secretions of the mamma, in repressing and even restraining them, it would appear to exert an influence on the generative organs of the female, and may be employed in the deranged conditions of its functions.

Of late, employed for the purpose of lessening the inordinate secretion of milk, or *Galactorrhœa*, as the disease has been termed.

The secretion of milk it would seem continues, in some cases, beyond the usual time, and is productive of inconvenience, and even disease, by the irritation its presence produces. And, further, while it continues, the recurrence of menstruation and pregnancy is prevented.

To lessen this secretion, various remedies have been employed—as brisk cathartics, astringents, mineral acids, &c.

Cases related of the efficiency of *Cicuta*. The operation of *Cicuta* on the glandular system, would seem to bear some analogy to that produced by Iodine.

Preparation of the Extract—as other extracts, by bruising the plant, expressing the juice, and evaporating to a proper consistence.

Time of gathering the leaves.

The extract is of a dark green color, almost black, has a strong disagreeable smell, and a pungent taste.

Directions in the use of the Extract—

Begin with a small dose, and increase gradually, until it produces some sensible effect, viz: giddiness, slight sickness, or a trembling of the body. Thus the doses may be augmented to a considerable degree.

In commencing with a new supply, return to the original small doses, no two parcels agreeing in strength.

The leaves dried and pulverized, another form of administering this article. The powder is of more uniform strength, and less likely to spoil.

It should be kept in close stopped phials, excluded from the light.

It is probably owing to inattention in the preparation of the plant, and the small doses which are employed, that we have to complain of its failure in its application to diseases.

Poisoning from the use of *Cicuta*.

Treatment as directed with Opium.

Family *Ranunculaceæ*—*Aconitum Napellus*, or *Wolfsbane*—*Monkshood*.

The term Aconite is derived from *akoné*, a rock, because many of these plants are found growing in rocky situations in the forests of Sweden, Switzerland, and other places. *Napellus* is derived from *Napus*, a turnip, from the resemblance of the root to a small turnip.

Botanical description of the plant—

The deleterious qualities of this plant were known to the ancients, who regarded it as the most violent of all the poisons. It was the poison employed to execute the barbarous law of the Island of Cos, which condemned to death all who were no longer useful to the State.

Hence old men who were deemed too feeble to defend themselves, were deemed useless, and presented with a draught of the juice of Aconite.

The root of this plant is more active than the leaves.

Sensible properties—

Taste, moderate bitterness, followed by a sense of numbness, which is felt on the tip of the tongue.

Odor, faint and narcotic.

The term Aconitia, has been applied to the alkaloid obtained from it.

Peculiarities in the action of the Aconitum.

The most remarkable is, the contraction of the pupils, with a numbness of the tongue, lips, throat, with a prickling and tingling down the arms, fingers and wrists.

Diseases in which it is recommended—

In those cases, attended with diminished Cutaneous secretion, as *Rheumatism*, *Gout*, *Cutaneous affections*, &c. In the former disease spoken of in high terms by Dr. Lombard, of Geneva, and more recently by Dr. Sigmond. In this disease, he observes, when the joints are tumefied and painful, the sufferings aggravated by the slightest touch, the skin hot, Aconite is the most serviceable remedy we can employ.

In *Gout*, its efficacy, according to the same authority, does not seem less decided.

In *Neuralgic* pains it has been spoken of very highly.

The Extract may be applied as a plaster, and in a similar manner in Rheumatic pains.

Given internally, it is useful to combine the powder, or the extract, with some antimonial preparation, or with Calomel, Ipecacuanha, Guaiac, &c.

Dose of the Extract, $\frac{1}{2}$ to ii. grs.

Dose of the Powder, ii. to x. grs.

Aconitia or Aconitine, exists in the plant, combined with the Aconitic acid.

The effects of this article are similar to those of the root, but much more powerful.

Rubbed on the skin, it causes intense heat, tingling and numbness, which continue for more than twelve or eighteen hours.

From its extreme activity, it should be used with great caution internally. It is seldom recommended to be given in consequence of its extreme activity.

Poisonous operation of Aconite—

Poisoning with this article sometimes arises from the roots being mistaken for horse-radish, and eaten accordingly as a condiment with food.

Symptoms—Burning and numbness of the lips, mouth and throat, extending to the stomach, with vomiting, attended with blood—pupils contracted, lips blue, trembling of the body—The mental faculties are not disordered, neither delirium, or sleep—consciousness is retained, and the power of locomotion to the last moments.

The patient expires, apparently, in a fainting state.

Remedies—Evacuants chiefly, no counter poison known.

Family *Cannabinaceæ*—*Cannabis Indica and Sativa*—*Indian Hemp*. This plant is a native of Persia, but cultivated in India, and in Europe.

Description of the plant—

Has been employed as an intoxicating substance in Asia, and Egypt, from early times, and as a medicine in Europe in former times—lately brought into European notice by Dr. O'Shaughnessy.

The Cannabin, or Indian Hemp, is a glandular secretion of all parts of the plant, which is collected by the natives of India and Persia, for its exhilarating and intoxicating effects, as a substitute for wine and opium.

It is known by a variety of names, as "Increaser of pleasure," "Exciter of desire," &c.

It is collected during the hot season, by men clad in leathern dresses, running through the hemp fields, and brushing the plant with all possible violence—the soft resin adheres to the leather, which is scraped off, and kneaded into balls. This is an inferior quality.

A finer kind is collected by the hand, and sells for nearly double the price of the ordinary kind.

It is also prepared, by pressing the resinous plant on coarse cloths, and then scraping from these, and melting it in a pot, with a little warm water.

These preparations are known by the name of Churrus.

The Junjah is the dried plant which has flowered, and from which the resin has been removed. This is sold for smoking.

Chemical analysis—

Volatile oil, in small quantity.

Resin.

Sensible qualities—

Taste, warm, bitterish, acrid.

Odor, fragrant and narcotic.

Its general effects upon the system are—

To alleviate pain, increase the appetite, excite mental cheerfulness, and unequivocal aphrodisia—and if given to too great an extent, delirium and a cataleptic state.

Diseases in which it is employed—

In *Rheumatism*, *Tetanus*, *Hydrophobia*, *Cholera*.

In *Tetanus*, cases are recorded of recovery from the use of it, in doses of $\frac{1}{2}$ gr. of the extract, increased to v. grs. For particulars, vide Rankin's Abstract, also the Southern Journal of Medicine, Vol. ii., No. 2.

The preparations are the Tincture and Extract.

Dose of the Extract, ss. gr. to iss. gr., increased in Tetanus, or Hydrophobia.

Tinctures of the extract and leaves.

Dose, x. to xl. gtts.

Prussic or Hydrocyanic Acid.

One of the most powerful articles of the M. M.

It exists very abundantly in the vegetable kingdom.

It is obtained in a considerable quantity from the leaves of the *Cherry*,

and other *species of Laurel*, from the Bitter Almond, Peach Blossoms, and the kernels of different fruits. To this substance is owing the unfriendly influence which they exert over the system.

From these substances it is obtained by distillation, and when given to animals in sufficient quantity, it extinguishes life without a struggle.

In small doses it occasions Convulsions, Tetanus, and all the effects of the Narcotics.

For medicinal purposes it is obtained by chemical processes, to be explained by the Professor of Chemistry. When obtained, the following are its qualities :

Color, limpid and colorless.

Odor, pungent and suffocating.

Smell, of bitter almonds or peach blossoms.

The pure acid is a very active poison—a single drop is destructive to animals, either plunged into the throat, or dropped upon the eye, or injected into the veins.

It is even impossible to breathe the vapor with impunity, producing great uneasiness of the chest, &c.

But though highly poisonous in its pure state, yet when properly diluted, it is applicable to medical purposes. Properly administered, it will be found to be perfectly innocent, and may be employed in large doses, given with prudence.

Its operation is evidently sedative, and exerts a considerable influence on the nervous system—it gradually diminishes all irritability, checks a too rapid circulation, and calms many of the symptoms of fever. There is relief from pain, sleep comes on undisturbed, respiration is slower, pulse becoming softer.

Its operation would seem to be powerfully asthenic, or counter-stimulant, and to be employed in Inflammatory diseases.

Application to diseases—

Adapted to diseases connected with increase of sensibility, and irritability.

Employed by Magendie for the cure of *Nervous* and *Chronic coughs*, *Catarrhal affections* and *Whooping-cough*.

Dr. Fontanelles speaks highly of it in the latter disease, given to children. Formula :

Rx. Acid Hydrocyanic, gtt. iii.

Distilled Water, 3 i. m.

Dose, 3 i. to 3 ii. every two hours.

Effects of this medicine were, that patients slept well, did not experience those paroxysms of coughing which threatened suffocation. In a few days, the complaint wholly subsided.

Dr. Granville also speaks favorably of the practice.

Its use has been extended to the treatment of *Phthisis*, for the relief of the cough, and other symptoms, which overpower the unhappy consumptive patient.

Magendie has employed it in these cases, and has found it useful in diminishing the frequency of the cough, promoting expectoration, procuring sleep, and lessening the colliquative sweats. Best adapted to the early stages of the disease.

Dr. Granville also speaks favorably of the practice, and has known all the distressing symptoms of *Phthisis* relieved and cured, by the use of this medicine.

The experience of the physicians of this country and city, unfavorable to the reports of the article, and that its powers have been considerably overrated.

In chronic *Catarrhs* it may be employed with more confidence of success, but it should not be trusted to alone.

In *Asthma* this article has been employed, and may be had recourse to with much advantage, after mild antiphlogistic remedies have been used.

In *Dyspepsia* it has been employed upon the principle of allaying irritation, thereby allowing a slower, and consequently a more healthy gastric secretion—also employed in *arresting vomiting*, not dependent upon inflammation. By its use, vomiting which had lasted for months, ceased upon the exhibition of a few doses.

The cases were unconnected with inflammation, for it should be observed, that when this state of the stomach exists, it is more successfully treated by antiphlogistics.

Prussic acid has further been recommended, as making *other medicines* remain upon the *stomach*, which would otherwise disagree, or be rejected.

In *Gastrodynia*, accompanied as this disease often is, with vomiting, and precordial tenderness.

In these cases, it has sometimes acted as a charm, and relieved the patient in the most surprising manner. This disease, in most instances, seems to be dependent upon a disordered condition of the nerves supplying the stomach, or of the nervous centres, from whence the nerves are derived—in other words, it seems to be *Gastric Neuralgia*.

The medicine, in this complaint, not only allays pain, but relieves vomiting, and, in the latter instance, after all other remedies had failed.

It has also been employed in an analogous affection of the Intestines, or *Enterodynia*, and with effects quite as beneficial.

It has been recommended in other diseases, as in painful and difficult *Menstruation*, *Uterine Hæmorrhage*, *Hæmoptysis*, and *Nervous diseases*—It is a substitute for blood-letting in *Sub-acute Inflammations*, and for Opium, and other Narcotics, when they cannot be employed.

It has also been noticed as a remedy in *Tetanus*.

Of the modes of exhibition—

In the form of mixture, as follows :

℞. Medicinal Prussic Acid, gttss. viii. to x.	
Distilled Water,	℥ vii.
Simple Syrup,	℥ ss. m.

A table-spoonful to be taken every two hours.

It is indispensably necessary, to use no other than distilled water in all prescriptions with the Prussic Acid, otherwise decomposition will take place.

It is proper to begin with a small dose, and increase it until some sensible effects are produced.

Should it produce nausea, vomiting, disturbance of the bowels, vertigo or dizziness, it will be proper to discontinue its use.

Symptoms produced in poisonous doses—

They are yawning, and irresistible disposition to sleep, vertigo and dizziness of sight. The pulse is found to be rather strong at first, but flags soon after, and becomes either frequent, wiry, and small, or slow and vibrating. Paralysis of the extremities ensues—pupil remains dilated—sensitivity diminished—life becomes extinct.

Examples to prove the powerful operation of this article.

Antidotes—Of the many antidotes proposed, a few only are retained and confided in.

Ammonia proposed by Mr. Murray as a counter-poison—Applied to the mouth on a sponge, and dropped into the mouth, diluted with water, was attended with the effect of immediate restoration.

Chlorine combines high chemical and physical properties. By the first, it decomposes the Prussic Acid, while by its stimulating properties, it contributes to obviate the effects the poison has already induced.

To these, the affusion of cold water should be added, and artificial respiration.

Objections to the use of this article :

1. The uncertainty which exists respecting its precise strength.
2. Its extreme liability to decomposition. To preserve its strength as much as possible, the phials containing it should be close stopped, and kept in a cool and dark place.

The undiluted acid should not be tasted.

Substitutes for the Chemical preparations.

Family *Drupaceæ*—*Prunus Lauro Cerasus*—*Cherry Laurel*.

A small tree, native of the Levant, cultivated in Great Britain in the formation of hedges, and in this country.

Description of the plant—

The leaves the part employed.

Taste, bitter, styptic.

Odor, bitter almonds.

The kernel-like flavor the leaves impart, being esteemed grateful, has caused it to be employed in custards and puddings, and being employed in proper quantities, no bad effects result.

The Laurel water distilled from the leaves is employed, having the advantage of being more permanent and uniform in its strength, than the chemical preparations.

The dose from xxx. to lx. gtts.

A tincture of the leaves is employed.

The dose the same.

Prussic Acid is also obtained from the *Bitter Almond*.

This nut contains albumen, mucilage, and a considerable quantity of a bland, insipid, inert oil, separable by expression.

It contains another principle, the Prussic Acid, which is separable by distillation, and called the distilled water of the Bitter Almond.

It is a good substitute for the Chemical preparations, and is much employed in Germany in the preparation of pectoral mixtures.

From the cake which remains after the separation of the fixed oil, there may be obtained a *Volatile Oil*, in union with Hydrocyanic Acid.

It is obtained by placing one hundred pounds of this cake into a still, with a large quantity of water—It is brought to boil—the volatile oil rises up into the head and worm of the still, in union with which is the Hydrocyanic Acid—one hundred pounds yielding 3 i. to 3 iss.

Properties—

Color, pale yellow.

Taste, acrid and bitter.

Odor, that of the peach blossom.

The acid can be separated from the oil, by digesting the red oxyd of Mercury with it, by which is formed a cyanuret of Mercury, from which it can be separated by distillation with Muriatic or Hydrochloric Acid.

The dose is 1-6 to $\frac{1}{4}$ of a drop, gradually increased. It may be administered in emulsion with Gum Arabic, loaf sugar, and water.

Family *Papaveraceæ*—*Sanguinaria Canadensis*—*Blood-root*—*Puccoon*.

Indigenous, and among the earliest visitors in spring.

Description of the plant—

The root is the part employed—Externally of a reddish brown color—Internally pale—upon being broken, an orange colored juice flows out.

The coloring matter resides in the resinous part of the root—an alcoholic solution contains twice as much color, as the aqueous infusion.

Medicinal properties—

They are various, and its classification differently arranged by different writers.

It is Emetic, Expectorant, Tonic, and Narcotic, exhibiting all these effects according to the dose.

In small doses it increases the excitement of the sanguiferous system, augments the action of the lymphatics of the viscera, excites appetite, and promotes digestion.

In a large dose it nauseates, diminishes sanguiferous action, produces faintness, and often vertigo, and, finally, emesis. In improper quantities, it vomits with much violence.

Diseases in which it is employed—

Rheumatism—given to the extent of producing slight nausea, its Narcotic effect seems excited, and with it the pain subsides, and the action of the arterial system is reduced.

The preparation used is as follows :

R. Root of *Sanguinaria C.*, 3 ii.

Spirits of Wine, 3 vii. m.

The dose will be gtt. xxx., every three hours, until nausea is produced. Thus employed it has been beneficial.

In derangements of the Hepatic system, either as an Idiopathic affection, or as a consequence of Bilious Remittent Fever, or other Fevers, it may be advantageously employed. It exerts an alterative operation

upon the secretions of the liver, by which deficient secretions are renewed, or a torpid state of the organ overcome.

By its Narcotic impression, pain and irritation are lessened, and febrile excitement moderated.

A better appetite is established—the secretions generally improved—a better condition of the skin succeeds.

In *Jaundice* also much employed, though not trusted to exclusively.

In *Bilious Colic*, and *Bilious Diarrhoea*—With the use of this article, attention should be given to the diet, clothing, the secretions and excretions.

In diseases of the *Thorax* it has been recommended.

It has been employed in the acute, as well as chronic affections, but chiefly in the latter.

In cases where the respiration is difficult, with cough and occasional hæmorrhage from the lungs, it has been found useful.

In *Hydrothorax*, given in doses of lx. gtts. three times a day, and increased until nausea is produced.

In *Pertussis* and in *Asthma*.

As an external remedy—

The powdered root is used in ill-conditioned ulcers, with callous edges, and an ichorous discharge.

Also in Polypi of a soft consistence, as a stimulatory, and it is especially useful after an operation, for the purpose of checking the growth of a new tumor, when symptoms of it appear.

The formula is as follows :

R. Powdered root of *Sanguinaria C.*,

Calomel, each

ʒi.—m. for a powder.

The powder to be blown up the nostril by means of a quill.

Forms of administration—

Tincture, powder, and infusion.

Dose of the simple Tincture, gtt. xx., increased.

Do. do. Powder, grs. v. to viii. as a Tonic.

Do. do. Powder, grs. x. as an Emetic.

The infusion is prepared, by infusing ʒi. of the powder in a gill of warm water—dose ʒss., to be repeated, according to circumstances.

The powers of the root are impaired by keeping; and by drying, seventy per cent. of its weight is lost.

The Tinctures are also impaired by keeping, so that they should be renewed annually.

To the alkaloid obtained from the root, the term *Sanguinarine* is applied.

Family *Apocynæa*—*Strychnos Nux Vomica*.

Grows in the East Indies—The fruit is a berry of the size of a small orange, and filled with a soft jelly-like pulp. The seeds are immersed in this pulp, five in number.

Description of the seeds—

They are round and flat, an inch in diameter, quarter of an inch thick, hard and tough like horn, covered with a velvety down.

Odor, none.

Taste, intensely bitter.

Texture, so hard that they can only be reduced to powder by filing.

Chemical analysis—

Strychnia, combined with Strychnic Acid, forming a Strychnate of Strychnine.

A yellow coloring matter.

A concrete oil, with other principles.

Besides Strychnia, Nux Vomica contains also another active principle, viz : Brucia, in combination with Strychnic Acid.

Strychnine combines with acids, so as to form neutral salts.

Medicinal properties—One of the Narcotico-acrid poisons, having an action chiefly exerted upon the spinal cord.

In large doses, producing great disturbance in the functions of the animal economy, as laborious breathing, retching and nausea, tremors, or torpor, tetanic spasms of extraordinary force, asphyxia and death.

It is possessed of *Narcotic* properties, but in many respects differs from most articles of this class, and is peculiar in its operation.

The peculiarity of its operation is, that examinations of bodies destroyed by this substance, discover no alteration in the tissue by which we are led to the knowledge of the immediate cause of death, showing that its action is very much on the nervous system.

Nux Vomica belongs to a family of plants remarkable for their highly poisonous properties.

For a century, Nux Vomica has been known as a powerful medicine, and has been employed in a great variety of diseases, with different degrees of success.

In Germany and Italy, combined with Gentian in the treatment of Intermittent Fevers—as a Narcotic in Mania—also employed in Epilepsy, Hydrophobia, and other diseases. But as its exhibition was often attended with spasms and vomiting, it had been laid aside, and was employed for few other purposes than as a poison against rats, and other vermin.

Thus it remained, until the experiments of Messrs. Raffineau, Delisle, and Magendie, upon the effects of the Upas Teuté upon animals.

In 1809, Magendie presented to the Institute of France some account of a course of experiments, which led to an unexpected result, viz : that an entire family of plants possessed the singular property of strongly exciting the spinal marrow, without affecting, except indirectly, the function of the brain.

This family was the Strychnos, and they were found capable of producing, in man and brutes, an artificial Tetanus.

From these effects, it was afterwards conceived by Dr. Fouquier, that the Strychnos might be useful in *Paralytic affections*, by exciting a tetanic action, and thus creating a new action in the muscles of the palsied limb.

Experiments performed with this particular view, were highly favorable to its use in this disease. The effects of the Nux Vomica are felt in a very short time after it is taken, and according to the dose, the voluntary muscles experience strong and permanent contractions, and

these contractions more readily take place in the parts, or limbs, affected with palsy, and this in proportion as they are deprived of motion or feeling.

It is remarkable, however, that the Diaphragm is not affected by these spasms.

The cases in which this medicine was applied, sufficiently test its utility, and there can be no doubt, that it has proved more decidedly beneficial, than any other remedy heretofore employed in paralysis.

The symptoms which are considered favorable to its use, are—a sense of thrilling, or throbbing, or starting in the affected part or limb.

An internal sense of unpleasant heat, or an increased sensibility all over the parts deprived of motion.

Many cases could be cited of the relief afforded by *this article in paralysis*.

In the application of this article to paralytic affections, it would appear, to be less useful in that species of the disease arising from Apoplexy, but to be principally advantageous in Palsy arising out of an impaired state of the nervous energy, or those cases brought on by excess in venery, in liquor, in narcotics, by metallic influence, by rheumatism, and by acute diseases. All cases arising in any of these causes, are proper objects for the use of this article.

We have known it employed in several instances in this city with great advantage, and without hesitation would recommend it to your notice.

Dr. Thomson is of opinion, that this article does not influence the circulation of the blood in the brain, even when it is given in sufficient quantities to produce death.

He, therefore, recommends it in cases in which, although paralysis may have ensued from pressure on the brain, and there is reason for thinking that benefit may be derived from so direct and powerful a stimulant of the nervous energy.

Of the manner of administering the Medicine.

It may be given in substance, in doses of four grains, four, five, and six times a day, which is the most appropriate quantity for an adult, and thus remove by the gradual operation any apprehensions of danger, as it may be discontinued, or not, according to the symptoms produced. As the quantity is to be increased, its becomes inconvenient from its bulk, and this, added to the very great reluctance which patients commonly express to the taking of the medicine, renders it necessary to prescribe a more agreeable form for its administration.

For this purpose, an *alcoholic extract* is prepared.

A certain quantity of Nux Vomica, after having been rasped, is submitted to the action of alcohol, and renewed, until the raspings no longer yield any thing to the solvent. This solution is evaporated slowly to the consistence of an *extract*.

The dose of the extract, is from *one to two* grs., exhibited as the substance, in the form of pills, augmenting the dose gradually, until the expected affection, a thrilling, throbbing, tetanic shocks, and pricking, are experienced in the affected parts.

When these are felt, the augmentation of the dose is to be discontinued.

If continued after these symptoms are produced, violent tetanic shocks are excited throughout the system, so as to throw the patient from his bed.

Besides the diseases which have been mentioned, to which this article is well adapted, it has been employed in some others connected with muscular relaxation—as in *Incontinence of urine, impotence, paralysis of the upper palpebra.*

In *Incontinence of urine* in children.

In *weakness of the genital organs*, and in that debilitated state of the nervous system, which is more particularly indicated by an irresistible desire to fall asleep.

It has been given with advantage in *Chorea Sancti Viti*, and likewise for the destruction of *Intestinal worms*, which it is supposed to effect by its extreme bitterness.

It has been recommended in the form of Strychnine in diseases of the *Eyes*, particularly *amaurosis*, and from cases cited in the periodicals, it would appear with much benefit, applied to the Temples, the cuticle being previously separated by a blister.

From the Nux Vomica, Messrs. Pelletier and Caventou have obtained an alkaline matter, which has been called Strychnine.

The substance is in the form of *crystals*, and *is insupportably bitter*—(one grain gives a perceptible bitterness to eighty pounds of water)—leaving at the back of the fauces the sensation experienced from certain metallic salts—it has *no odor*—exposure to the *air does not affect it*. It is given in the same diseases as the substance, in doses of the $\frac{1}{12}$ th or 1-12th of a grain, made into pills. It should be given in a soluble state united with acids, as Strychnine in its pure state only becomes active by meeting with an acid in the stomach.

We have various salts of Strychnine—

Nitrate.

Muriate.

Sulphate.

Acetate.

Salts administered as follows :

℞. Acetate Strychnine, grs. ii.

Water, ℥i. mix. .

Dose—xx. drops, in an infusion of orange peel, two or three times a day.

Great discrepancy of opinion exists as to the effects of different doses of the Strychnia. It is to the badness of the article, that we are to ascribe its inefficiency in small doses. Much that is met with in the shops contains a large proportion of Brucine, and the activity of the medicine is in the inverse ratio of the quantity of the Brucia—one gr. of Strychnine being equal to six grs. of Brucine.

The mode of ascertaining that Strychnine is pure—

Add to a mixture containing Strychnia, a small quantity of Nitric Acid. The deeper the *red* which is produced, the larger must be the

quantity of the *Brucia* present, and no *Strychnia* should be employed, that is tinged more than a *pale reddish yellow hue by the Nitric Acid*.

Of the poisonous operation of the Nux Vomica.

Poisoning with this article is not unfrequent. It is not easy to conceive why this substance should be selected, since it is exceedingly bitter, and death produced by it is accompanied with a great deal of torture.

Symptoms—

Pain and heat in the stomach.

Burning in the gullet.

A sense of rending and uneasiness in the limbs.

Stiffness in the joints.

Convulsive tremors.

Stiffness of the muscles of the neck.

Severe pains under the ensiform cartilage.

Contractions of the muscles ending in Tetanus.

The smallest fatal dose recorded is iii. grs. of the extract, and of the powder xv. grs.

3 ii. proved fatal in two hours.

The first object is to expel the offending substance—emetics, or the stomach pump, must be resorted to as quickly as possible.

Tincture of Iodine has been recommended as a counter-poison—Ioduret of *Strychnia* is formed, which is far less active than *Strychnine*.

Keeping up of artificial respiration is of the utmost importance.

Dissections of those who have died, show no organic lesions.

Brucine.—Instead of *Strychnine*, some of the continental physicians are in the habit of prescribing *Brucine*, and it is stated with considerable advantage. We have tried it in two or three cases without much apparent benefit, and are inclined to think that it is *decidedly inferior* to *Strychnine*.

In France, however, it is largely employed, and has the reputation of being a remedy of considerable value in the treatment of paralysis.

It has *one advantage over Strychnine*—it can be more *easily divided* and regulated, so far as respects the quantity given, as it is a much weaker preparation than *Strychnine*, one grain of which is equivalent to six grains of *Brucine*.

Family *Convolvulaceæ*—*Gelseminum Sempervirens*—*Yellow Jasmine*.

Description of the plant—

This beautiful plant flourishes in almost every soil in the maritime districts of Carolina and Georgia, though it prefers moist and rich lands.

It abounds along the roads, covering the shrubbery with its rich foliage and flowers, perfuming the air with its delightful fragrance.

This article is possessed of *Narcotic properties in a very considerable degree*, and by virtue of this property, has been applied to several diseases.

It has been employed in *Rheumatism* with some success, and in two or three cases related by a Graduate of our school, after the disease had existed for some time, and resisted a variety of remedies.

It was also employed in *Gonorrhœa*.

The part used is the bark of the root, and it is best given in the form of a Tincture, in the proportion of $\frac{3}{4}$ i. of the bark, to a lb. of spirits.

Thus prepared, it is extremely active, and its effects upon the system are the same as those which characterize the Narcotics. It exerts a strong influence upon the brain and nervous system—to such a degree, that I have known ninety drops, taken in three doses, produce vertigo, tremors, perverted vision, the objects seen appearing double, and all idea of distance entirely suspended.

The case in which the article was given, was a gentleman laboring under Gonorrhœa.

He was directed to take thirty drops, three times a day. He had taken two doses, and a third before breakfast, and was surprised in finding, that upon extending his hand to reach the butter, there appeared to be two plates of butter, and he could not distinguish the real from the imaginary object, so that for a time he was really cutting at a shadow.

The medicine was discontinued upon these feelings being experienced, and he could not be induced to continue its use.

From this statement, you will be convinced of its great activity, and if we could compare it to any known article, it would be the Prussic Acid.

From its decided influence on the nervous system, it might be extended to the treatment of the diseases so much connected with irritation, in which that article has been recommended,

At all events, its effects might be borne in recollection, and its operation tested in some of the forms of *chronic* and *irritative* disease.

Many other articles enumerated under the Narcotics might be mentioned, but having brought to your notice the most useful and important, with their application, I shall refer you for a knowledge of those that remain to the systems of the M. M.

DIVISION 13.

ANTI-SPASMODICS.

THE operation of this class of medicines is involved in so much obscurity, and presents such difficulties, that few writers have attempted an explanation. The production of spasmodic diseases, is so closely connected with the deranged states of the nervous and sensorial systems, with the operation of which we are wholly ignorant, that a like ignorance must attend our explanations of the actions of medicines supposed to be exerted upon them.

In their operation, the medicines of this class are capable of exciting

the actions of the system, and they are equally effectual in allaying pain and inordinate muscular action.

They differ from the narcotics, in not producing that state of stupor and insensibility which follows their application—at the same time, they are useful in diminishing muscular contraction. This difference has been explained upon the supposition, that as stimulants, they have greater durability of action than the preceding class, while their anodyne power is inferior. They, therefore, hold an intermediate station between narcotics and tonics, and experience shows, that they partake of the properties of both.

As all attempts to explain the operation of this class will be entirely speculative, I shall pass over this part of the subject.

In proceeding to speak of the articles of this class of medicines, we ought not to disguise, that they are very rarely employed, at least by ourselves. So great a revolution has of late taken place in the pathology and treatment of nervous and convulsive diseases, that the remedies which were once in vogue, are now rarely administered. These diseases have, for a long time, been considered as originating in great mobility of the system.

By this term was meant much excitability, connected with a debilitated, or more properly, a delicate habit of body.

Such, doubtless, is the state of constitution giving rise to these diseases—but it should also be observed, that the phenomena of nervous excitement, or the symptoms these diseases present, originate often in excited states of the cerebral and spinal systems, and in many instances stimulants, particularly of the diffusible kind, comprised under this class, are injudicious and improper. Such at least has been my views, in the management of these cases, particularly during the states of excitement, or while the paroxysm is on.

In many instances, particularly in Hysteria occurring with delicate females, I have afforded almost instantaneous relief by depletion, by drawing a few ounces of blood, by keeping the apartment cool, by cold applications to the head, cold drinks—and by these means more prompt and effectual relief has been afforded, than by the whole catalogue of Anti-Spasmodics successively employed.

There are periods, however, when these medicines can be resorted to. In the intervals of the paroxysms, they are of use to fortify the nervous system, and to calm the irregular and disorderly movements. They seem adapted to lessen that excitability which is too readily excited into action, upon any, even the most trifling occurrences, which have reference to the feelings and sensibilities. Anti-Spasmodics, though useful, are not even here the most approved means. This very excitable state, or unequally balanced condition of the system, is often effectually, and, we believe, most effectually, removed, by bringing into action the corporal energies—by giving vigor to the muscular system—by exercise—by tonics—by change of air—of climate—by soothing mental anxieties, or removing them, if practicable—and very often by renewing secretions, or discharges, which have been interrupted—of these secretions the most important is the catamenial.

Sub-acute forms of these diseases will occur, in which a depleting

course cannot be pursued, and where the chronic remedies which are to be resorted to in the intermissions, cannot be practised. Under these circumstances, the Anti-Spasmodics, strictly so called, must be resorted to.

It should be observed, that all the substances which we are to consider under this class, are vegetable, gummy, resinous, or aromatic substances, or animal substances of much odor, or chemical substances which are very diffusible. It is, nevertheless, in this vegetable or animal aroma, that the diffusible property, and the Anti-Spasmodic effects, of these substances reside.

PARTICULAR ANTI-SPASMODICS.

FAMILY *Apiaceæ*—*Ferula Assafoetida*—*Assafoetida*.

An umbelliferous plant resembling our Fennel, which grows in Persia.

The gum resin is obtained from the root of the above plant, which is large, fleshy, white within, and contains much milky juice, having a strong, alliaceous smell.

Assafoetida is the concrete juice of the root of this plant, which is collected by making transverse incisions in it, and allowing the juice to exude. It is hardened by exposure to the sun.

Assafoetida is fusible and inflammable, burning in the air with a white flame, and the evolution of much smoke.

Sensible properties—

Taste, acrid and bitter.

Odor, strong, alliaceous and peculiar—volatile, and impaired by keeping.

It is received in masses, composed of various shining lumps or grains. These grains are of various colors, whitish, reddish, or of a violet hue.

Analysis—

Resin in large proportion.

Volatile oil—To which is owing its odor and acrimony.

Gummy matter.

Various salts.

Virtues and uses.

It is employed by the Asiatics as a condiment with their food, using it to flavor their sauces, and even eating it alone.

The Banian Indians, a religious sect in the country of the Mogul, believing in the transmigration of souls, do not use animal food. As a substitute, they have recourse to the most stimulating condiments, and employ this article liberally in their cooking, rubbing their mouths with it before meals, to stimulate their appetites. The factor of their exhalations is almost intolerable, even to the organs of the natives.

Diseases in which this article is employed—

Chiefly in those of the nervous and spasmodic character, as *Hysteria*, *Hypochondriasis*, or the *Convulsive affections* as *Epilepsy*.

It is useful in these cases as a palliative, by allaying irritation, and moderating the violence of the paroxysms.

In diseases of the *Alimentary Canal*, where the digestive powers are feeble, or impaired by intemperance.

In *Dyspepsia*, as a Stimulant and Carminative.

When combined, as in the gum pill, it is useful to procure alvine evacuations, and is employed by elderly persons.

Formula for the Gum Pill :

℞. Assafoetida,
Galbanum,
Myrrh, each 3i.
Oil of Amber, 3i.

Syrup as much as is sufficient, mix, and divide into pills of a convenient size. Two of these pills are a dose. If necessary, a little Aloes may be added.

In *Flatulent Colics*—When the presence of the Hysteric paroxysm prevents the medicine being taken by the mouth, it has been found useful to give it in the form of glyster. In this manner Assafoetida is very often advantageously administered, and not only in this disease, *but in Flatulent Colics*, and in Convulsive affections generally, and in *Tympanitis*. It is prepared in the following manner :

℞. Assafoetida, 3ii.

Decoction of Barley, 3x.—mix for an enema.

In diseases of the *Thorax* it has been highly commended.

In *Asthma* it is useful as an Expectorant, and to lessen spasm, but the complaint is of too obstinate a nature to receive a material check by this article.

In *Pertussis*, given in the form of a watery solution, after Inflammatory action has abated, the happiest effects will often result.

Some objections to its use, from its unpleasant taste, and the difficulty of making children take it.

In the secondary *stages of Catarrh*, where difficulty of expectoration and dyspnoea exist, and particularly useful in the cough following *Measles*.

It has been recommended in other diseases, as in *Amenorrhœa*, and as an *Anthelmintic*, but of doubtful utility.

Form of exhibition—

Watery Solution, Tincture, Pills, and as an Enema.

Family *Valerianaceæ*—*Valeriana Officinalis*—*Valerian*.

A plant indigenous to England and Germany.

The root the part used.

It is perennial, and grows in moist and dry situations—the latter preferred, as it possesses more odor, and stronger medicinal properties.

They ought not to be gathered until they are three or four years old.

The root is fibrous in structure, and the fibres proceed from a central knob.

Odor, strong, very characteristic, and very attractive to some animals.

Taste, warm, camphoraceous, slightly bitter, somewhat acrid and nauseous.

Aroma of the plant produces sneezing, and slight disorder of the mental faculties.

Effect of the aroma upon the eat.

Chemical analysis—

Volatile oil.

Valerianic acid.

Resin.

Resinous extractive.

Ligneous matter.

The camphorated odor depends upon the volatile oil.

The foetid odor, and acrid disagreeable taste to the resin.

The sweetish taste to the gummy extract.

Effects of this article upon the system.

Valerian is stimulating in its operation.

It accelerates the circulation.

Increases the animal heat.

Increases some of the excretions, as the perspiration, also the urinary.

Excites the Cerebro-Spinal System, which is of a calming or soothing nature, allaying the agitation, sleeplessness, the wandering pains, oppression, which so frequently attends in these cases.

Diseases in which it is employed—

In *Epilepsy*, and those diseases attended with increased mobility and excitability of the system generally.

In *Hysteria* and other spasmodic affections, with an irritable state of the constitution which attends in these cases, it may be relied upon.

The failure of the article in some cases, is attributable to the diversity of causes from which it arises, as well as from the medicine not being of good quality.

In *Hemicrania*, combined with Peruvian bark, it is employed, and found very useful.

In *Chronic Hysteria*, occurring in females of a cold phlegmatic temperament.

In *Typhus Fever*, where there is great prostration.

When the pulse is small, quick, and frequent.

Respiration, short and hurried.

Sensorial functions much disordered, it is employed combined with ammonia and bark.

Forms of administration—

In substance, though not an eligible form.

In Tincture.

Volatile Tincture.

Infusion—preparation as follows:

℞. Rad. Valerian, bruised, ʒ i.

Boiling water, ʒ xii.

Simmer ten minutes—of this ʒ ss. to ʒ i. may be taken two or three times a day, with the addition of a drachm of the Tincture.

By long boiling its virtues are lost.

As an *Anti-Hysteria*, it is usually combined with Assafoetida, Ammonia, and other nervous Stimulants.

Essential oil—

The best form for its administration is the following :

Rx. Essential Oil, gtt. xx.
Brandy, 3 i. m.

The dose is, i., ii., or 3 iii., in a little water.

Extract—i., ii., or 3 iii., daily.

The extract is employed in spasmodic contractions of the Limbs, nervous tremors, unaccompanied with symptoms of Plethora, Chorea, Epilepsy, Palpitation of the Heart, Spasmodic Asthma.

Fluid Extract of Valerian—

Dose, a tea-spoonful with a little water, as required.

Valerianate of Zinc—

Combines the properties of Anti-Spasmodic and Tonic, particularly well adapted to the treatment of nervous affections, and Neuralgia.

This combination is more valuable than the Oxyd of Zinc, and Oil of Valerian, prescribed together.

In *Asthma*, the following combination has been found very useful :

Rx. Valerianate of Zinc,
Valerianate of Quinine, each grs. v.
Extract of Valerian, 3 ss.
Syrup of Juniper, as much as is sufficient.

Mix, and divide into xvi. pills—a pill to be taken three times a day, in the intervals of the paroxysm, and every two hours during the paroxysm, until relief is obtained.

The objection to this article is its expensiveness, and the difficulty of obtaining it of a good quality—very liable to decomposition, either by acids, or exposure to the atmosphere,

The best characteristics of its purity, are its

Being in brilliant, pearly, tabular crystals, snowy whiteness.

Its neutrality to litmus paper.

Its solubility in water.

The dose is from three-quarters to one gr., two or three times a day, in pill—Not very soluble in cold water.

Family *Liliaceae*—*Allium Sativum*—*Garlic*.

This plant grows spontaneously in Sicily, and is much cultivated for culinary purposes.

It is not much used by the medical practitioner.

It has been exhibited as a stimulant, and stomachic, in enfeebled digestion, as an Expectorant in old Chronic Catarrhs, as a Diuretic in Dropsy, and as an Anthelmintic.

Externally, as a resolvent in Indolent tumors.

As a local irritant, or rubefacient, applied to the feet, to cause revulsion from the head or chest.

As a remedy for some cases of deafness, a clove of garlic, or a few drops of the juice, being introduced into the ear.

Administration—Swallowing an entire clove dipped in oil, or beaten up, and made into pills.

Family *Apiacea*--*Dorema Officinale*--*Bubon Galbanum*--*Galbanum*.

The Inspissated juice of a plant, the exact habitat of which is not known--Persia, and the Cape of Good Hope, the localities assigned to it.

It exudes spontaneously from the stem, but incisions are made into the stalk, and it is then gathered, and made concrete by exposure.

It has not sufficient pretensions to retain its place in the M. M. It forms an ingredient in the compound pills, and compound plaster of Galbanum, and also as a resolvent, and suppurant in indolent swellings.

We shall pass it over, with several others, which are enumerated under this head.

Anti-Spasmodics derived from the animal kingdom--*Musk*--derived from the *Moschus Moschiferus*, an animal resembling the rein-deer, inhabiting Siberia, China, Thibet.

It is a peculiar secretion, in a small sac, situated near the umbilicus of the male.

The sac, or pouch, is peculiar to the male.

The organ is of an oval shape, lined with a delicate membrane, having a small orifice communicating externally. In this cavity the Musk is secreted.

It is strongest in the animals inhabiting China, and Thibet, being less aromatic in more Northern climates.

It is most abundant during the rutting season, and is only filled in the adult males, though seen in the young males.

It is imported in round thin bladders, its natural receptacle, covered externally with hair, containing about 3 ii. of the substance.

Sensible properties--

Color, reddish brown.

Odor, diffusive.

Taste, bitter.

It is frequently adulterated with blood, asphaltum, &c. Lead is sometimes introduced into the sac. To be genuine, the bags should have no appearance of having been opened.

Medical properties--

Chiefly useful when we wish to excite the nervous system, which it does in a considerable degree, and gives activity to the mental and corporeal energies.

As an Anti-Spasmodic, it has been employed in the treatment of *Tetanus*. Though commended by several writers, as Heberden, Hillary, and Owen, we have not much confidence in it.

In *Hydrophobia* it has been employed, but with little advantage.

In *Epilepsy* it has been recommended by Dr. Thompson, in combination with Calomel, and he is inclined to attribute much of the disappointment which others have experienced, either to the remedy not being genuine, or to the smallness of the dose.

In the low stages of *Typhus Fever*, when it is attended with delirium, twitchings of the muscles, and a small contracted pulse. In these

cases it is employed with much prospect of success, given alone, or combined as follows:

℞. Musk, grs. xv.
 Camphor, grs. v.
 Confection of Roses, as much as is sufficient.

Make into a pill. When it can be given in the form of pill, it is preferable, as the perfume in this way is not half so strong as in any other.

In the attacks of *Retrocedent Gout*, Musk has been found very beneficial, and cases are related of relief by this medicine.

Dr. Cullen's case related—

Attacks of this disease are extremely violent in their nature—very powerful medicines are, therefore, required, and from the highly stimulating and Anti-Spasmodic properties of this article, it will be advantageously employed, either alone, or combined with opium.

In *Convulsive Hiccough*.

Besides these diseases, it has been employed in *Mania*, *Hysteria*, *Hooping-cough*, *Asthma*, but with effects not very decided.

The high price of Musk will always prevent its general use, and from this circumstance it is very apt to be adulterated. When genuine, it is a powerful medicine.

Forms of administration—

In pill, as already mentioned.

The mixture is prepared as follows :

℞. Musk,		
	Powdered Gum Arabic,	
	Sugar, each	℥ i.—triturate, add by de-
grees	Rose Water,	℥ vi.

Dose, ℥ ss. to ℥ i.

Employed also in the form of enema, particularly for children laboring under *convulsions*, arising from the irritation of dentition.

As a local remedy, it is useful in atonic deafness, when inserted into the ear with cotton.

Artificial Tincture of Musk.

Preparation.

It has been employed in many spasmodic diseases, but not with decided effects in any but *Pertussis*, in which it often affords relief.

Dose, xv. gtts., repeated three or four times a day.

Castor—Obtained from the *Castor Fiber*, or Beaver, an amphibious animal, inhabiting, Siberia, China, Thibet.

It is found in two sacs, or bags, near the Rectum—found in both sexes. These sacs contain a brownish oily matter, a peculiar deposition of fat.

Sensible properties—

Smell, disagreeable.

Taste, nauseous.

Castor was formerly in great repute in those affections of the nervous system, denominated Spasmodic, as *Hysteria*, *Epilepsy*, *Catalepsy*, and in the diseases connected with uterine disorder—but it is little em-

ployed at the present time, partly in consequence of its disagreeable taste and smell, and partly because it is considered almost an inert remedy.

It is still employed by a few.

Sulphuric Æther.

Preparation.

Sensible properties—

Odor, penetrating and diffusive.

Taste, pungent.

It is volatile.

Properties, Stimulant and Anti-Spasmodic, and is possessed of them in a high degree.

In *Asthma*, administered during the paroxysm, it generally gives relief, but has no tendency to prevent the recurrence of the attack.

In diseases of the *respiratory organs*, when there is a tendency to congestion in the lungs, with difficult expectoration, and much mucous existing in the trachea and bronchiæ, it may be usefully employed. In these cases, it relieves the constriction, excites the circulation, and promotes expectoration.

In *Cramp* of the *stomach*, *singultus*, and *flatulent Colic*, its happy effects are well established.

In the latter stages of *Continued Fever* it is administered—It relieves the subsultus tendinum and hiccough, and a very useful formula is the following :

℞. Infusion of Green Mint,	℥ xvi.
Sulphuric Æther,	℥ ii.
Purified Sugar,	℥ ii. m.

Dose, ℥ ss. to ℥ i., every second or third hour.

This mixture is also found useful in *Contagious*, *Petechial*, and low forms of Fever.

Its sensible, and more immediate effects, are—

To relieve the lowness, anxiety, tremors.

To lessen the irritability of the stomach.

Lessens the irregularity and frequency of the pulse.

To cause moisture and perspiration.

Useful as this article is, its powers are very much increased by combination—Combined with Morphine, and Sulphate of Quinine, it was very extensively used in several of the stages of Cholera, being employed before the collapse came on, and afterwards, with great advantage. It was found very beneficial in allaying spasmodic action, and keeping up the vital powers.

The formula is as follows :

℞. Sulphate of Morphine, grs.	iv.
Sulphate of Quinine, grs.	viii.
Alcohol,	℥ i.
Sulphuric Æther,	℥ iss.
Spirits of Camphor,	℥ iss. m.

Dose, a tea-spoonful, to be taken every hour, with water, until ease

is obtained. If the case is severe, the quantity must be increased to two or three tea-spoonful.

It is also employed in the stage of Diarrhoea, until relief is obtained.

We have employed it in various other affections of a spasmodic character, as in an *irritable* and *spasmodic condition* of the *Uterus*—a very distressing form of disease, of rare occurrence, and particularly well described in Gooch on Females, to which we would refer you for an interesting description.

This disease occurs in the unimpregnated state, in the married and unmarried—it causes a great deal of distress, and is more violent before the catamenial period, often continuing for some time.

We have employed it also in *spasmodic affections* of the *bowels*, and on various occasions where a Stimulant and Anti-Spasmodic was required.

Externally—Employed as a Rubefacient—and when this is intended, its evaporation is prevented—also used to relieve muscular pains, and in gout—and from the sudden coldness which follows its application, to *Inflammatory tumors*, and to *headaches*.

The dose is xx. to xxx. gtts.

The effects of this article, under the title Letheon, have been already treated.

Hoffmann's Anodyne Liquor.

The composition of which is not exactly known, but is supposed to be a mixture of Sulphuric Æther, with a small portion of Alcohol and Oil of Wine. As it is weaker than the Æther, the dose is larger.

This preparation is not much employed at the present time. The doses are the same as the preceding article, and the effect the same, the Ætherial Oil only altering its flavor a little.

Ætherial Tincture of Valerian—

Prepared by digesting the Valerian root in Hoffman's Anodyne.

Oleum Succini—Oil of Amber.

Amber is a bituminous substance, found on the sea coast in various situations—it is brittle, and when rubbed, emits an agreeable odor, and becomes electric.

Preparation of the Oil.

Employed in Hysteria, and Convulsive affections, and is principally useful in palpitations of the Heart.

As an external application it is a useful ingredient in liniments, for Rheumatic pains, Paralytic affections, &c.

Formula—

Rx. Spirits Turpentine,
Oil of Amber,
Aqua Ammonia,
Olive Oil, each equal parts.

Mix for a Liniment.

The medicines which have been mentioned, are the most important of this class, and those which are strictly called Anti-Spasmodic. But

spasm depends upon such different states of the system, and is excited by such a variety of causes, that the most opposite remedies are found beneficial in its removal—sometimes venæsection is the best anti-spasmodic we can employ, or other depleting remedies, sometimes the Narcotics, and at others Tonics.

The judgment of the practitioner should be employed in making a selection, and he will act most for the interest of his patient, who, without attaching himself to terms, or classes of medicines, is determined by the condition of the system, and those rules of thinking and acting, which can only be acquired by steady, and close attention to the morbid operations which are presented to him.

DIVISION 14.

TONICS.

UNDER this Class, are included Stimulants, with powers modified, and differing very essentially from any of the preceding. Their operation is to give Tone to the system. In doing this, they do not produce any sensible excitement, and by their gradual operation, they give vigor and activity to the vital powers, without any depression following their use. In this respect, they differ very essentially from any Stimulants which have been mentioned. These, by raising the excitement to a considerable degree, are quickly followed by proportional languor and debility. But in Tonics, the Stimulant operation being more slowly exerted, any change is much less conspicuous, and the succeeding collapse takes place to no considerable extent. Their Stimulant effect is principally to be observed from their long continued use—when they increase the force of the circulation, strengthen the powers of digestion, excite the deficient secretions, and restrain them when too profuse—they also give strength to the muscular fibre, and renovate the actions of the system.

Their action is not mechanical, as was once conceived, giving tension or tone (hence the term Tonics) to the muscular fibre, but it is exerted upon the whole system influenced by laws incident to vitality.

The action of Tonics will be most satisfactorily exhibited, by considering their influence upon the different systems of the body.

1. The Digestive. The stomach is the organ primarily acted upon, and from it, by nervous communication, the whole system becomes invigorated. The stomach being improved, digestion is better performed, a more abundant and healthy chyle is produced, and hence greater health and vigor is imparted to the body. The functions of the stomach being better performed, the fecal discharges exhibit a corresponding improvement in appearance. They are lessened in quantity, and are of a more firm consistence; they are retained longer in the Intestinal canal, and hence costiveness not unfrequently attends the employment of Tonics.

Tonics are improperly exhibited to persons in whom there is irritability of the stomach, and this connected with the presence of inflam-

mation. Far from relieving this symptom, digestion will be found still further to languish, and there will be added anxiety, oppression, pains in the head, &c. They are improperly exhibited before the Intestinal secretions have been altered, and a healthy discharge procured.

2. Upon the Circulation. The contractions of the heart are increased in force and energy by the use of Tonics. The action of the Capillary system is strengthened in a considerable degree under their influence, and hence they are employed with much advantage in hæmorrhages, connected with feeble action, in discharges from the skin—in increased secretions from the mucous follicles, &c.

3. Upon the Respiratory System. The action of Tonics in strengthening the powers by which respiration is performed, improves this function, without rendering it more frequent. The blood experiences changes—it becomes of a more red or vermillion color, more consistent, and less serous.

4. Upon the Absorbent System. That the action of these vessels is improved, is proved by the rapidity with which Interstitial absorption is sometimes carried on—as evinced in the speedy removal of œdematous swellings.

5. Secretion and Exhalation. These functions are most commonly diminished under the action of Tonics. Connected, as they very often are, when in excess, with a debilitated condition of the system, they can only be advantageously resorted to under such circumstances.

6. In favoring digestion, Tonics improve much nutrition in general.

Under these circumstances, the body returns to its natural fullness, the flesh to its firmness, the skin to its clearness, leaving little doubt of the advantageous impressions produced by a judicious use of this class.

7. The Cerebral System. The functions of the brain experience a like favorable influence.

The senses are more acute and more delicate—the understanding and memory are exercised with more readiness—the powers of locomotion are revived; a feeling of health, and of being well, animate the body; and the individual experiences that he is himself again.

It is in these several ways that Tonics exert an action friendly to life, and to the restoration of an enfeebled system.

Upon what principle they produce their beneficial effects is not exactly known; but it seems to be connected with their bitterness—as most of the Vegetable Tonics are possessed of this property. This, however, is not invariably the case, as many articles are bitter without being Tonic—as digitalis, and opium—and some of the metallic preparations are Tonic, though void of bitterness.

Tonics are divided into *Vegetable* and *Mineral*, and in none of the classes, are we supplied with so rich and abundant a collection. We shall treat of them as belonging to each of these kingdoms, and shall begin with the vegetable.

The Tonic power of vegetables is intimately connected with certain sensible qualities—with their bitterness, astringency and aromatic flavor—all of them possess these qualities, though in different articles one may be more predominant than another. The purest bitters, astringents, and aromatics, possess more or less of a Tonic power, but as they each

exercise a different mode of action, it is evident that a more powerful tonic will be obtained from the combination of these qualities, than where they exist separately. The most powerful Tonics are accordingly natural combinations of these principles, and of these, the most important is the genus *Cinchona*.

PARTICULAR TONICS.

Family *Cinchonaceæ*—Genus *Cinchona*—Comprehends a large and valuable number of plants—not less than twenty-six species, of which twenty-one are described. Some of them grow to the size of a cherry tree.

General characters—

Leaves, oblong and lanceolate.

Flowers, of a reddish color.

Pod, like an almond.

The *soil* in which they thrive best, is generally a red clayey, or rocky ground, especially on the banks of small rivers, descending from the mountains.

The *season* for cutting the bark.

On the trees being stripped of their bark they soon perish, and as the number of these trees to which access can be had is not very considerable, it has been supposed that a sufficient quantity of the bark to supply the demand could not long be procured. Condamine, however, asserts that the young trees do not die upon losing their bark, and as those which are suffered to become old, have time to disseminate and propagate, the fear of exhausting this valuable medicine is wholly groundless.

It would seem that very reasonable apprehensions have been entertained, that this valuable family of plants might become exterminated.

The government of Bolivia has prohibited the cutting of bark in its territory for five years.

The consumption of *Cinchona* is immense, more so than we possibly are aware.

Fears may reasonably be entertained, that in a few years, this invaluable article may wholly disappear from commerce.

When the properties of this Genus became known—

There is nothing very determinate upon this subject.

It is said by some, to have been known to the Indians before the discovery of America by the Spaniards.

This is denied by others.

There are several traditions as to the discovery of the efficacy of this substance.

The account given by Baron Humboldt, is most probable, which refers the discovery to the Jesuits.

The article was not much known in Europe until 1637, when a signal cure having been performed by it, on the Spanish Viceroy's lady,

the Countess del Cinchon,* at Lima, it came into general use, and was distinguished by the name of the Pulvis Comitisse, or the Countesses' powder.

Also called Jesuit's powder, because it was by them first introduced into Europe.

The varieties of Cinchona in use, are, the Pale, Yellow, and Red Barks.

The *Pale Bark* is derived from the

Cinchona Officinalis of Linnæus, or

Do. Condaminea of Humboldt.

Called also Grey, Loxa, or Brown Bark.

It is found in the mountains of Quito and Santa Fe, and was regarded as of a superior quality—what was brought from Loxa, a province, or jurisdiction in Quito, being preferred.

Description of the plant—

The bark, as met with in the shops, is

In twigs, singly convoluted.

Cinnamon color.

Fracture fibrous.

Covered externally with a thin epidermis.

Sensible properties—

Taste, bitter, slightly astringent.

Flavor, aromatic, with a slight mustiness.

The Spaniards gave it the name of *Cascarilla fina*, from its supposed superiority—Chemical analysis has determined that it contains but little Quinine, its chief active ingredient being Cinchonine.

The *Yellow Bark*, called also *Calisaya* Bark, from being brought from a province of that name in Peru.

It is derived from the *Cinchona Cordifolia*.

Description of the plant—

It appears under the form of rolled pieces, of the size of the thumb, having its epidermis of a greyish color, to which a crust of Lichen adheres.

Sensible properties—

Color, a clear yellow.

Taste, bitter, without any astringency.

Structure, fibrous.

Thickness, one or two lines.

This is one of the best species of bark, and it is employed for the manufacture of Quinine, yielding a much larger proportion of this salt than any other species.

The Red Bark is derived from the

Cinchona Oblongifolia.

Description of the plant—

The tree grows to a considerable size.

It is found in Peru, and New Grenada.

It is found in larger and thicker pieces than the pale.

Less convoluted than the yellow.

* Hence the Genus was called Cinchona.

Not forming quills or cylinders.

Its fracture is short.

Color, red.

Taste, agreeable.

It is more scarce in our markets than either of the others, and when genuine, commands a higher price.

It has been thought to possess the virtues of Cinchona in a higher degree, and to have been the species known and used by Morton, Sydenham, and Lister, with such success in the treatment of Fevers.

Experiments seemed to confirm these opinions, as it contains Quinine and Cinchonine, though of the former in a much less degree than the Calisaya, by at least twenty per cent.

Such are the principal varieties in use, furnished by the Genus Cinchona.

These varieties may easily be confounded with each other, because the distinguishing characters are not so fixed, and decided, as to remove all uncertainty on the subject.

If, however, to the characters drawn from the color, we add that furnished by the taste, much of the difficulty of discrimination will be removed.

The pale bark has a taste, bitter, and astringent.

The yellow a taste simply bitter.

The red is distinguished by its color.

Its taste is astringent.

Its bitterness inconsiderable.

The varieties enumerated do not comprehend all of this important genus. There are many other species, and their characters well determined, but in consequence of the perplexity which arises from their number, and of their being frequently mixed together, we are unable to form very nice, or accurate distinctions.

These cannot be drawn from their sensible properties, and we must refer to chemical analysis for better information.

Other varieties—

Cinchona Nitida.

Cinchona Lucumæfolia.

Cinchona Lanceolata.

Cinchona Ovalifolia.

Cinchona Ovata.

Cinchona Pubescens.

Cinchona Hirsuta.

With many others, not sufficiently determined.

The application of Cinchona to Diseases, and the remarks made, are applicable to the employment of Quinine.

This medicine was originally introduced in the treatment of *Intermittent Fevers*, and its best effects are displayed in their cure.

Before having recourse to bark, it becomes a *question whether evacuants are required*.

In our opinion they are required, particularly in vernal Intermittents, when much Inflammatory action exists. When to this there is added

bilious accumulations in the stomach, the use of evacuants is imperiously demanded.

Emetics may be employed for this purpose, as they do good, not only by evacuating the system, but by the shock they communicate to the whole nervous system, the morbid actions are broken up, and disease removed.

The testimony of practitioners could be adduced, as to the importance of evacuants preceding the use of bark. They need not be emetics in all cases, but it is proper to cleanse the primæ viæ, before having recourse to Tonics.

The proper period of employing the Bark—

The earlier we employ the bark, the more speedy and certain will be the cure, provided the state of the arterial system, and the general habit, do not forbid its use.

It has been said that Cinchona was admissible in the interval only of an Intermittent Fever, and it has been urged, that if given during the paroxysm, it has a tendency to prevent the subsidence of the paroxysm.

This statement is much overcharged. It has been given in almost every stage without injury.

The nearer to the approach of the paroxysm it is given, the more effectual we believe it will be.

Should Bark be employed when visceral obstructions exist?

It should be remembered that these obstructions are occasioned by the Fever, and the sooner the Fever is removed, the more readily will they subside.

We should endeavor to promote the efficiency of the Cinchona, by reducing the disease to the form of a pure, or simple Intermittent. The means to effect this will depend upon a variety of circumstances, sometimes small detractions of blood, or purgatives, or alterative doses of Mercury will be required.

The period of the paroxysm when Cinchona should be employed—

The best period is during the intermission, an hour or two before the approach of the paroxysm, or at proper intervals during the intermission. But it is often necessary to employ it during the Febrile stage, particularly in Remittent Fevers, which show a tendency to become Typhus.

The quantity which ought to be given—

It will be in such doses as the stomach will bear, and it is necessary to carry it to a considerable extent as far as 3 i. of the powder, or x. or xx. grs. of Quinine.

Where the stomach is irritable, so large a quantity could not be retained. It may often be necessary to employ it in a milder form, as Infusion, or Decoction.

It should be continued after the removal of the paroxysm to prevent its recurrence, or to avoid a relapse.

In considering the operation of this article, we cannot but regard its anti-periodical, one of the most singular and remarkable. It cannot be explained, but the contemplation of it must fill our minds with wonder and admiration. We know no more of it than of the purgative, or emetic operation of other articles.

It seems to be produced by the modification, or change, impressed upon the nervous system, by the influence which it exerts upon the nerves of the stomach.

But this is not the only manner in which it operates, since it acts as Febrifuge when introduced into the large intestines—when used in the form of a bath, or when the cuticle is removed, and the alkaline salt applied.

In *Remittent Fevers*—This article is no less valuable.

This might readily be inferred, as the disease originates in the same causes as Intermittents, and often interchanging with them.

Of the propriety of evacuations, there seems to be but little hesitation, and the remission is frequently rendered more complete by such course. They seldom have distinct remissions without some decided depleting course of remedies. When by such remedies the disease is brought into a state of obvious remission, i. e., when the restlessness, anxiety, and tendency to delirium abate—when the mouth and fauces are moist—when the organs of secretion, and especially the skin, are more open and pervious—such symptoms admit the use of Bark, with the same freedom as in Intermittent Fevers.

In the Remitting Fevers, however, of warm climates, the accession of the paroxysm is so extremely violent, and the strength of the patient so quickly exhausted, that it becomes absolutely necessary to catch the first opportunity of the most trifling remission, and to give the Bark with freedom, even though all the symptoms of remission above mentioned do not exist.

The administration of Bark as a general rule is improper,

When there are symptoms of general or local excitement.

When the tongue is red or dry.

When there is thirst, or pain in the epigastrium.

When there is tumefaction of the abdomen.

When the stools are liquid, dark, or fœtid.

When the pulse is strong and frequent.

When the skin is dry.

When Inflammation affects the serous membranes, or the parenchymatous substance.

When there is hæmorrhage of an active character, internally or externally.

These rules will be found of very general application, though exceptions will occur.

In *Continued Fever*.

In the latter stages, when the vital powers are beginning to sink, and when there is no marked or decided symptom of Inflammatory disease of the Brain, or digestive organs, Cinchona, or Quinine, proves highly beneficial. At the close of such cases, when the pulse becomes feeble, with stupor, or great prostration of strength, the animal heat not much increased, with a disposition to form petechiæ, it acts very powerfully in supporting the vis vitæ, and will be found one of the most important auxiliaries which can be brought to our assistance.

In *Congestive Fever*, all authorities concur in the necessity in all per-

nicious, or congestive varieties of fever, of a prompt and bold use of Quinine.

It must be used in large doses, and at all periods of the disease, without regard to those conditions of the system that have generally been supposed to contra-indicate its use. This mode of practice is adopted by the physicians of the South and West, and its necessity and safety have been abundantly demonstrated.

The paroxysm must be arrested, or the patient will die—and our chief agent for this purpose, is the Bark and its preparations. We have no evidence that in this form of fever they have any tendency to increase the intensity of the local symptoms. It is given in doses of x. to xx. grs., every hour or two hours, often without regard to the pulse, or the skin.

It does not act as a simple Tonic or Stimulant, but as a specific, anti-periodic, and no known tonic, or stimulant, can be substituted for it.

In some of the *Phlegmasiæ*, particularly *Rheumatism*, Bark has been recommended.

This disease, notwithstanding the inflamed state of the joints, often assumes the form of a Remittent Fever, and under these circumstances, a perseverance in the antiphlogistic plan is generally found to be ineffectual.

The type of the Fever is generally that of the double Tertian, and the patient is usually exhausted by the profuse sweatings, which terminate the paroxysm.

In such cases, Bark is particularly recommended.

In *Hemicrania*, or periodical headache, Bark may be used with the greatest success. By its use the disease has been cured, after resisting a variety of anti-inflammatory remedies.

In some of the *Intestinal affections*, particularly *Dysentery*, Bark has been highly recommended.

Its utility is predicated upon the frequent alternation of Intermittent Fever and Dysentery, and whenever it assumes the Intermittent form, Bark combined with Opium, often exerts a very salutary influence.

The use of this article might be extended to the treatment of Small-Pox, Measles, Scarlatina, to the Hæmorrhages, &c.

But it has been, and is still, so constantly employed in a great variety of diseases, that we shall not attempt to enumerate them. The general operation of this valuable article is to restore, and increase the general health and strength—to improve the appetite, and promote all of the functions of the body. This it effects in a gradual way, and mostly without any sensible operation, except that of strengthening the pulse.

Besides the original use of Bark in Febrile diseases, it is scarcely less extensively or certainly useful as an auxiliary to Surgery, in supporting and improving the vis vitæ under extensive bodily injuries, large ulcerations, compound fractures, and cases where Gangrene is threatened, or actually established.

These operations, to proceed in a favorable manner, require a certain degree of vital energy. It is, therefore, in the case of Atonia, or defective action, that the Bark should be employed, in order to bring on

that degree of inflammation, so necessary to the secretion of good pus, or for resisting the progress of Gangrene.

The necessity of this practice frequently occurs after *amputations*, when the pulse becomes weak and frequent, with anxiety about the precordia, a pallid redness in the diseased part, together with the effusion of a thin serous fluid on the surface. In such cases, by the use of Bark, the pulse becomes stronger and fuller, the color of the diseased part gradually improves, and a mild and well digested pus is prepared.

In *Gangrene*, it is equally remarkable to perceive the immediate, and good effects from the use of the Bark, which by producing a necessary and salutary degree of inflammation, the gangrenous parts are separated from the sound, and the progress of mortification is checked.

Forms of exhibiting Cinchona—

From the extensive use of Quinine in diseases, it would seem unnecessary to dwell upon the forms of administering Cinchona.

The Febrifuge property of Bark is possessed by Quinine, and in many instances it succeeds in relieving the patient—yet in some cases the cures have been observed not to be permanent, and it has been necessary to resort to bark in powder, relapses being less frequent by this practice.

Quinine, it has been observed, cannot be substituted for Cinchona as a Tonic.

We shall, as heretofore, speak of the several modes of administering this article, since it may be occasionally necessary to resort to them.

Cinchona is exhibited in powder.

In this form it is most efficacious, and often the only one which can be depended upon for the cure of Intermittents, and many other diseases, which require the vigorous use of this medicine.

The powder is not an agreeable form of administration, partly from the taste, which is nauseous, and partly from the bulk and quantity of impalpable powder which must be swallowed.

This disgust increases with use.

The disagreeable taste may be corrected in several ways.

A cup of coffee, with sugar and milk, will bear the addition of a dose with very little alteration of taste.

Red wine, or water, with a small quantity of brandy, or warm tincture—

Or, made into an electuary with syrup.

To render it more agreeable—

Aromatics are added, or powdered Serpentaria.

Formula—

R ^c . Powdered Bark,	3 ss. to 3 i.
Powdered Nutmeg,	
Or Powdered Cloves, or Cinnamon,	3 ss. to ʒ ii.
Carbonate of Soda,	3 ss.

Mix, and divide into four or six powders, one to be taken every two or three hours.

When it cannot be taken in substance, decoction is then used. Prepared as follows :

R. Bark of Cinchona, bruised,	℥ i.
Water,	℥ xvi.—boil for ten
minutes, and at the close of the boiling, add	
Bruised Serpentaria root,	℥ ii.—let it stand for
an hour and strain, add	
Tincture of Cinchona,	℥ iss.

Dose, ℥ i. every hour or two hours.

Always to a decoction of Bark, or other vegetable substance, unite a portion of the Tincture—in this manner we combine the active principles of the article. Before being taken, shake the mixture, that the sediment be added to the clear liquor.

This is the best substitute for the powder.

Infusion is another form for exhibiting Bark.

Seldom resorted to, not being very efficacious where the full energy of the article is required.

Tinctures—Simple and Compound, or Huxham's Tincture.

Employed as auxiliary medicines, and principally as a stomachic mixed with the Decoction.

Adulterations—

The powder is frequently adulterated. The adulteration consisting in uniting with bark of a good quality, others of an inferior.

The last and best preparations are the alkaloids.

The principle obtained from the Yellow Bark is called Quinine, and from the Sulphuric Acid being employed in its preparation, the Sulphate of Quinine.

Its advantages—

It possesses the active properties of Cinchona concentrated.

A much smaller dose is required.

It is easily retained upon the stomach.

It has been productive of the happiest effects, when the Cinchona, in substance, would have been attended with considerable inconvenience, or been rejected.

It can be employed in Febrile diseases earlier than Cinchona, and much success has followed its use.

It is preferable in the diseases of children.

As a Tonic, it is also employed, but with effects not equal to those of Bark.

The sensible qualities of Quinine are similar to those of Cinchona, its bitterness being more intense.

The dose of the article varies much, from i. to ii. grs., to v., x., xx.

It may be administered in sugar and water, or in porter, or in an infusion of any aromatic bitter—as orange peel, cascarilla, lemonade, or coffee.

In large doses it produces vertigo, tinnitus aurium, flushed face, bleeding at the nose, mental delusions, and all that is known by Quinism.

The best antidote is an active and efficient diuretic, as the Acetate of Potash.

The maximum dose varies much with different practitioners—With ourself, the dose varies from i. to v. grs. repeated.

Adulterations of Quinine—

It is adulterated with Sulphate of Lime, with starch or pipe clay, or spermaceti, or mannite, or Sulphate of Baryta, or Salicine.

We detect the adulteration with Sulphate of Lime, by the use of Alcohol, which dissolves the Quinine, but leaves untouched the Sulphate of Lime.

With Salicine.

We detect the adulteration with starch by heat, which causes it to turn black—with spermaceti by heat. The detection of mannite, and Sulphate of Baryta, is difficult.

Combinations of Quinine with other articles.

The Hydro-ferrocyanate,

The Hydrochlorate,

The Citrate,

The Tannate,

The Phosphate,

The Arseniate,

The Valerianate,

And other salts, have found favor with the profession.

The first and last, from not inducing Quininism.

The Hydrochlorate is most soluble.

The Citrate is more agreeable to the stomach, and rarely gives rise to Quininism.

The Tannate has been extolled for agues tending to Dropsy, or combined with more or less effusion.

The Phosphate of Quinine has been praised, from the fact of the acid combined with the Quinine being of an animal nature, and therefore more readily assimilated with the animal economy.

The Arseniate of Quinine, to have the combined anti-periodic powers of Quinine and Arsenic.

The Valerianate of Quinine, to cases of persons of a decidedly nervous temperament, and to excite no cerebral determination.—*Vide Mitchell's Therapeutics.*

Practitioners of the West unite Opium with Quinine, which they administer before the paroxysm.

They combine from iii. to vi. grs. of Opium with the same quantity of Quinine, and are more certain to arrest the paroxysm, than from two or three times the quantity of Quinine.—*Drake.*

Endermic Medication.

This plan of using Quinine is often resorted to, and is somewhat popular.

To avail ourselves of this method, a blister is laid upon the part, and the cuticle removed—after which, a cerate of Sulphate of Quinine is applied. We can rub from 3ss. to 3i., with an ounce of simple cerate, and apply the whole at once. The application should be made once in twenty-four hours as a general rule. In this manner, by free blistering, and the use of the Quinine Ointment, very obstinate cases of Intermittents have been cured. Cases may be cited of the beneficial

effects of this practice, even to the curing of Intermittents of eighteen months duration.—*Mitchell's Therapeutics.*

To a very superficial observer, it will be obvious, that the practice in Fevers has undergone a very material alteration, partly the result of the new phases or types in the constitution of Febrile diseases, and partly of the very remarkable properties which have been discovered in Quinine.

Climate, and its influences, exercises a very considerable agency.

Some of the changes which are observable, are, doubtless, attributable to the influence of local causes, to climate, season of the year, the constitution of the atmosphere, and probably also the condition of the constitution, subjected to the influence of these causes. These causes may have prepared the way for modifications, or changes of practice, with the discovery of properties in the use of Quinine, widely different from those which were attributable to Cinchona.

To their combined operation, are we to attribute the results which have taken place.

Of the notable changes in the treatment of Febrile diseases, the *most important* is to *secure a remission*. This is *not* to be brought about by the use of anti-phlogistics, preparatory to the use of Quinine—but the practice is to give the remedy in *ten times* the ordinary dose, early in the disease, and in urgent cases, without waiting for a remission, as a certain antidote to the miasmatic poison.

The termination by crisis is thus created, rather than awaited, and a successful termination most frequently occurs, when there is sufficient vitality remaining to react under the influence of full doses of Quinine.

The changes in the use of Quinine.

In free doses, it is relied upon as a *prominent remedy*, not only in severe and malignant forms of *Intermittent Fever*, but in the *Bilious Remittent Fever*, and what are called the *Congestive Fevers* of the South and West. In many cases a preparatory course of treatment is not considered necessary, and the most remarkable properties are attributed to it, in lessening the force and frequency of the pulse, relieving severe pain in the head, with the restlessness, jactitation, attendant on these cases, and a power to break up that train of action in the nervous system, which leads to a recurrence of the Febrile paroxysm. In short, instead of being a stimulant and irritant, as most writers teach, it is considered a *febrifuge and sedative*.

Irritability of the stomach, with other evidences of inflammation, are not sufficient objections to its use. On the contrary, it is often the best remedy for the relief of the symptom, and this in a full dose of xv. or xx. grs., and even in union with Capsicum.

In small doses, as ii. or iii. grs., it has produced an increase of the thirst, headache, restlessness, so much so, that it was necessary to discontinue it. In these doses, it would seem to be a stimulant.

Fevers, by the use of this article, and in large doses, are said to be arrested in twenty-four hours, provided the patient is seen before organic disease has taken place, and in the treatment of over three thou-

sand cases, says Dr. T. H. Elmore, of Iowa, in the St. Louis Medical and Surgical Journal, I have seldom had occasion to visit a patient more than twice.

Instead then of fearing to give this medicine where there is febrile excitement, hot skin, frequent pulse, and regarding it as a stimulant and irritant, as most writers teach, we are taught to believe that this medicine ought to be employed in large doses, as a febrifuge and sedative.

Bell and Stokes, in their practice, support this operation of Quinine. A large dose, say they, acts at once, or very soon, on the nervous system, and by diffusing the sedative influence throughout all its parts, it completely allays irritation, and induces general tranquillity of the functions.

To the *modus operandi* of Quinine, already referred to, let us add the remarkable property of increasing some of the secretions, and more particularly of the skin.

The most profuse discharges we have noticed from the surface, have been under the influence of this article, and to this determination would we attribute the impunity to the system, under the administration of very free doses of Quinine.

Effects of Quinine on the Spleen—

An enlarged, and unhealthy spleen, seems readily to come under the influence of proper doses of Quinine. This is proved by experiments on the lower animals, as well as those performed on man. The Surgeons of the French army report, that in the malarious districts of Africa, it is by no means uncommon for dogs to have their spleens much enlarged, and that they are easily reduced by the administration of medicinal doses of Quinine.—*Magendie and Bernard's Experiments.*

It is observed, also, that Strychnine produces a marked decrease in the size of the Spleen.

The views we entertain of the use of Quinine in Fevers, are briefly the following :

In the employment of Quinine, great care has in general been considered necessary in regard to the time of its commencement, in the preparation of the system, and when it should be used with benefit.

As a general rule, a *depleting* and *cathartic course* is necessary. This is to be continued until a decided *remission* or *intermission* in the febrile action takes place, unless symptoms contra-indicating its use should make their appearance. When the periodicity was well marked, and the tongue began to improve in its appearance, Quinine could be borne, and almost always with advantage. The quantity to be used during an intermission or remission, is from sixteen to twenty grains, dividing it into three or four equal portions, and watching the effects of each dose, until the administration of the first two or three. When perspiration followed its use, there could be no question of the propriety of its exhibition, and the result was in all cases satisfactory.

When the skin became drier, with increased heat, increase of thirst, cephalagia, and delirium, its use is properly to be discontinued.

When doubt exists as to the propriety of Quinine, it might often be given in combination with some *diaphoretic*—with Calomel, Pulvis

Antimonialis, or the dulcified Spirits of Nitre. This combination has often the happiest effects. It appears to determine the excitant operation of Quinine to the secretory action of the surface, and what under other circumstances might have produced dryness, and heat, results in profuse perspiration, like the sweating stages of an Intermittent.

When Quinine is employed before the system is prepared for it, there is danger of converting Intermittents into Remittents, and Remittents into the Continued—and fevers thus changed in their type, are with difficulty controlled by medicines.

The reports of Southern and Western practitioners are opposed to this course of treatment and these views, which they characterize as behind the age. They claim to be correct, which, doubtless, they are, when their treatment is applied to forms of fever occurring among them, characterized by the peculiarities of those fevers, instances of which have been described.

It may be worthy of inquiry, whether even these forms might not be cured with smaller doses of the medicine.

Medicines should be used with a view to a particular effect, and we should use them in such doses as will accomplish this—but when this is done, it ought not to go beyond it, or perhaps we may produce disease by our remedies, worse than the one we have been trying to cure.

The practice of employing Quinine under other circumstances than those recommended, may be confined to particular localities, when the causes which produce them operate with peculiar violence, and exhaust the nervous energy with great rapidity. As a general rule, when given prior to the correction of the secretions, its effects appear to coincide with the tendencies of the disease, while if the system is put in order it counteracts the train of morbid associations.

Cinchonine—

Has been employed as a Tonic and Febrifuge, but these properties are in a much less degree in this alkali than in Quinine. In certain cases, the febrifuge effect has completely failed. It is desirable that physicians should make new observations on this substance, which is found united with Quinine in nearly all the barks, and is found alone in the Carthagena bark.

SUBSTITUTES FOR CINCHONA.

Beeberine—

The alkaline principle of the *Nectandra Rodiei*—Green heart tree.

It is a new species of Laurel, belonging to the Genus *Neetandra*, and has been named *Rodiei*, in compliment to Mr. Rodie, late Surgeon of the Royal Navy, who, first in 1834, directed attention to its valuable febrifuge properties, and indicated the presence of an alkali in the bark of this tree.

The tree grows to a considerable size, and is employed in England for the purposes of ship-building.

The alkaloid is separated from the bark of the wood, in a manner similar to the separation of Quinine from Cinchona.

The uses of this article are *Tonic*, *Anti-periodic* and *Febrifuge*, and it has been proposed as a substitute for Quinine, and was regarded by Mr. Rhodie as fully equal to the Sulphate of Quinine— $\mathfrak{D}\text{i.}$ to $\mathfrak{Z}\text{ss.}$ being sufficient for a common Intermittent.

Some who have tried it a good deal, affirm that it is preferable to Sulphate of Quinine, as it does not induce that unpleasant ringing of the ears, nor the nervous uneasiness, so often complained of as caused by the salt of bark.

We have had no experience with the use of this article, and by some of our medical friends it is not spoken of in terms of satisfaction.

Cedron—A tree of the size of an Elm, growing in Central America—abundant in the neighborhood of Carthagera.

The seeds resemble a large bean.

They contain an oily matter.

A whitish farina, very bitter, more lasting and disagreeable than Quinine.

Dr. Cazentre has heard persons speak of having been cured by it of ague, which had resisted Quinine.

Cotton Seed Tea.

The mode of using Cotton Seed Tea, is the following :

After having given a dose of Calomel, the day, or night previous to the attack, followed by Castor Oil, in time to produce a cathartic effect before administering the tea—place a pint of cotton seed with a quart of water in a vessel, and boil it until half of the water has evaporated. Place the patient in bed an hour or two before the usual time for the recurrence of the ague, and give him a gill of the warm tea to drink, repeating the dose every twenty or thirty minutes, until the time for the attack has passed.

It should not be given during the chill, or fever, but immediately before the chill.

This practice has been found successful in very obstinate cases, where the usual medical means have proved wholly inefficient.

Family *Cinchonaceæ*—*Pinckneya Pubens*—*Georgia Bark*.

Nearly allied to Cinchona in virtues and general character.

It might be included in the same genus, but differences having been noticed, though probably not very material, it has been removed into a separate one by the elder Michaux, and the present title bestowed upon it, in honor of the late Gen. Charles C. Pinckney.

Description of the plant—

It grows in the most Southern parts of the Union, on the branches of the St. Mary's River, Georgia, in Florida and Louisiana.

The wood of the *P. Pubens* is soft, and unfit for use in the arts—its inner bark is extremely bitter, and appears to partake of the febrifuge virtues of the Cinchona, being employed by the inhabitants of the Southern parts of Georgia successfully, in the treatment of *Intermit-*

tent Fevers, which prevail during the latter part of the Summer and Autumn.

Preparation—A handful of the inner bark is boiled in a quart of water, until the liquid is reduced one half, and the clear fluid is administered to the sick.—*Vide Michaux's Sylva of North America.*

Family *Aristolochiaceæ*—*Aristolochia Serpentaria*—Virginia Snake-Root.

An indigenous article, and possessed of Tonic properties in a considerable degree.

The root is the part employed.

Sensible properties—

Smell, aromatic.

Taste, warm, bitterish, pungent.

It gives out its active matter both to water and rectified spirits, and tinges the former of a deep brown, and the latter of an orange color. On distillation, a white, pearly fluid collects in the receiver, very strongly impregnated with the aroma, but less bitter than the root. This fluid, on standing, deposits round the edges of its surface small crystals of camphor, which are said to be pure.

Medicinal properties—Stimulating Diaphoretic, Tonic, and Febrifuge.

Improperly exhibited in the early stages of disease, and during the existence of inflammatory symptoms.

Employed with advantage in *Fevers* of a *Typhoid type*, alone, or combined with Camphor, the Sweet Spirits of Nitre, or other Stimulating Diaphoretics.

The formula is as follows :

Rx. Camphor,	℥i.
Sweet Spirits of Nitre,	℥ss.—dissolve the Camphor
in the Spirits of Nitre, and then add	
Infusion of Serpentaria,	℥vii.
Tincture of Serpentaria,	℥ss.—strain.

Dose, ℥ss. every two or three hours.

This preparation will be found useful in supporting the strength and allaying the irregular actions which attend great febrile debility, as subsultus tendinum, delirium, watchfulness.

In *Remittent Fevers*, accompanied with determinations to the liver and lungs, and connected with symptoms of a Typhoid tendency, it may be beneficially resorted to.

In the *Remittent Fevers* of children, also advantageously employed.

In *Intermittent Fevers*, but cannot be much relied upon given alone. Combined with Cinchona, its powers are much increased—the powers of both articles seem to be increased by this union.

Rx. Powdered Cinchona,	℥ss.
Powdered Serpentaria,	℥i.
Carbonate of Soda,	℥ss.—mix.

To be divided into iv. or vi. powders, one to be taken four times a day, and said to possess peculiar powers.

In *Exanthematous* diseases, it is employed to keep out the eruption, and restore it if it had receded.

In *irritable conditions* of the *stomach*.

It is given in the form of infusion, and taken cold—it will be found grateful to the stomach, and to succeed in checking Emesis, after other means have been unavailingly employed.

Forms of administration—

Infusion prepared as follows :

Rx. Root of *Serpentaria*, 3 ii.

Boiling water, ℥i.

Dose, 3 ss. to ʒi, every two hours. Its active properties are volatile, and dissipated by boiling.

Powder—dose x. to xxx. grs.

Tincture—

Compound Tincture, called Huxham's.

It is prepared as seen in the Dispensatories.

It will be found a very useful and pleasant Tincture, either alone, or in combination with other articles.

INDIGENOUS TONICS.

MANY of them bear a considerable relation to the *Cinchona* *Officinalis* in chemical analysis and application.

In this class of remedies nature has been particularly bountiful. In no other can we discover so great a variety, or so many valuable plants.

Family *Cernuceæ*—*Cornus Florida*, or *Dogwood*.

The largest and most splendid of its genus.

It grows on the borders of swamps.

Description of the plant.

The bark is the part employed, and it is rough externally.

Color, brownish.

Taste, a strong bitter, with some astringent and aromatic flavor.

Chemical analysis—

Extractive matter.

Tannin.

Gallic acid.

Cornine—An alkaloid principle, similar to Quinine or Cinchonine.

Medical application—

Intermittent and Remittent Fevers.

Employed in these fevers as the bark has been recommended, and as it is less stimulating, it may be resorted to advantageously at an earlier period in the disease, than is safe or prudent to commence with that article.

Used also as a Corroborant or strengthening medicine in cases of general debility, and, in short, for most purposes to which the *Cinchona*

is applied, and is on some accounts preferable, as there is but little inducement for adulteration.

Forms of administration—

Powder, Tincture, Decoction, and Extract—In the former, in doses rather larger than the *Cinchona*, either alone or combined with *Serpentaria*.

In Decoction either alone, or combined with the *Prunus Virginiana*, or Wild Cherry.

The Tincture has been employed in various instances of impaired appetite and digestion.

The extract is less bitter, and more astringent than that of the best *Cinchona*, but preferable to the extract of the inferior kinds.

Cornus Sericea—Swamp, or Red Dogwood.

Properties nearly allied to the Florida.

Cornus Circinata—Round-leaved Dogwood, possesses the same properties.

Family *Drupaceæ*—*Prunus Virginiana*—*Cerasus Serotina*—The Wild Cherry tree.

This tree grows to a considerable size, and is very extensively diffused over the United States. It produces in autumn a small bitter cherry, black when quite ripe, which serves as food for birds, who frequently become intoxicated by eating them.

Description of the plant—

The part employed is the bark of the root and branches.

Sensible properties—

Taste, bitter, astringent, and in some degree aromatic.

Odor, narcotic—resembling the peach kernel.

The bark of the Cherry tree is allied to some of the preceding Tonics, both in its sensible and chemical properties, and like them has been substituted for the Peruvian bark.

Effects upon the system—

Increases the action of the heart and arteries, and in some is followed by a degree of drowsiness. This, however, soon wears off, and more permanent impressions succeed.

Diseases in which it has been employed—

In *Intermittent Fevers*, alone or combined with Dogwood bark, in substance, but most frequently in infusion.

In diseases of the *Thorax*, and with prospects of advantage, containing, as it does, so large a proportion of Prussic acid in its composition.

In *Phthisis*, from what has been said of the effects of Prussic acid, it has been employed. In the advanced stages, attended with much cough, hectic fever, with impaired strength, it has been resorted to, and the effects have been satisfactory.

Its good effects depend upon its lessening the frequency and irritated state of the pulse, moderating the cough, and supporting the strength of the patient.

In *Asthma*, also spoken of favorably—employed in the form of a strong infusion, and by persisting in its use for some time, permanent benefit has been afforded.

Employed as a Tonic in *Dyspepsia*, *Cholera Infantum*, *Chronic Diarrhœa*, and often with advantage.

In *Jaundice*, we have experienced much benefit from the use of this article, and after other articles of more celebrity had been tried in vain. Its *modus operandi* seems to be by its Tonic impressions, and allaying irritation.

The forms in which it is exhibited—

It may be given in powder, strong infusion, tincture, and syrup.

In infusion, the most usual form of administering it, and the best, as by boiling the Prussic acid is driven off.

The dose is a wine-glassful several times a day.

Powder, the dose from ʒss. to ʒii.

Tincture, from ʒii. to ʒss.

Very good effects are obtained by washing ill-conditioned ulcers with a decoction of the bark.

Family *Asteraceæ*—*Eupatorium Perfoliatum*—*Thoroughwort*.

To its Diaphoretic, already noticed, must be added its Tonic property.

Description of the plant—

It has been employed in the treatment of Intermittent Fevers, and cases are related cured by the use of this article, after previous depletion. By some preferred to the pale Peruvian bark, and popular opinion is much in its favor.

Forms of exhibition—

In powder in doses of ʒi. to ʒss.

In decoction, and taken cold.

Tincture of the flowers and leaves—as it is a pleasant and convenient form, it is also most powerful.

Same family—*Eupatorium Pilosum*—*Wild Horehound*.

Description of the plant—

It is very abundant in the Southern States, and has acquired much reputation as a domestic remedy in the prevailing fevers of our climate.

Useful as a tonic during the stage of convalescence after an attack of fever, and from its mild, and not unpleasant properties, agrees better with the stomach than the *Cinchona*—employed also in weak and depraved states of the stomach.

Forms of exhibition—

In infusion, ʒi. of the dried leaves in a quart of water, and of this a wine-glassful may be taken four or five times a day.

Family *Gentianaceæ*—*Gentiana Catesbæi*—*Blue Gentian*—*Sampson Snake-Root*.

Description of the plant—

Called *Catesbæi* in honor of Catesby, who first described it many years since.

It possesses properties nearly allied to the imported article.

Sensible properties—

Taste, sweet and mucilaginous at first, but is soon succeeded by an intense bitter.

Chemical analysis—

Bitter extractive—soluble in water and alcohol.

For the introduction of this plant into general notice, we are principally indebted to the late Dr. McBride.

Medical application—

Chiefly in cases of impaired *digestion*, connected with a debilitated state of the system generally.

In the form of infusion used with advantage in cases of *Pneumonia* of a *Typhus* character, as to its Tonic, it unites Diaphoretic properties.

Also in *Dyspepsia*, administered in the form of tincture, it increases the appetite, prevents the acidification of the food, and enables the stomach to bear and digest articles of diet, which before produced oppression, and dejection of spirits. It is much employed by the common people, and is useful on many occasions as an agreeable tonic.

The following formula will be found very useful and agreeable :

R. Blue Gentian Root, \mathfrak{z} i.
 Fennel Seed, \mathfrak{z} ss.
 Best Brandy, \mathfrak{lb} ii.—digest.

Dose, \mathfrak{z} ii. to \mathfrak{z} ss. in a little water, three times a day, and after meals.

Same family—*Sabbatia Angularis*—*Chironia Angularis*—*American Centaury*.

Description of the plant—

It grows in rich damp soils throughout the Middle and Southern States.

Sensible properties—

Taste, strong bitter, with an aromatic flavor.

Less offensive to the stomach from the possession of these properties, and they are communicated to water and alcohol.

Employed in domestic practice, and in some febrile affections.

Its good effects are speedily exhibited in invigorating the stomach and digestive organs, and restoring the appetite.

Form of exhibition—

A strong infusion—a tea-cupful taken frequently.

There are many other Indigenous Tonics which have been spoken of in high terms, but which it will be sufficient, simply to enumerate. They are as follows :

Liriodendron Tulipifera—Tulip Tree, or Poplar.

Magnolia Glauca—Sweet Bay, and White Bay.

Fumaria Officinalis—Common Fumitory.

Æsculus Hyppocastenus—Horse Chesnut.

Humulus Lupulus—Common Hop.

Xanthorhiza Apiifolia—Yellow Root.

Frasera Walteri—American Columbo.

The further acquaintance with these articles can be acquired at your leisure.

Family *Asteraceæ*—*Anthemis Nobilis*—*Chamomile*.

A native of the South of England, is perennial, and grows well in sandy soils. The flowers are the part made official, and of these the single ones are somewhat the strongest in their sensible qualities.

Sensible properties—

Taste, bitter and aromatic.

Chemical analysis—

A volatile oil, which gives to the flowers their aromatic quality, and which can be separated by distillation.

A fat, concrete matter, in conjunction with which Piperina is found to exist.

A bitter extractive.

Tannin and gallic acid.

Chamomile is among the most ancient articles of the M. M.

The flowers are much employed for their tonic and stomachic qualities, and for these purposes much resorted to from their mildness, together with their agreeable bitterness to many persons, which renders them particularly well adapted for improving the impaired and debilitated condition of the digestive organs.

Employed in *Intermittent Fevers*, as a substitute for the Peruvian bark.

They are employed in the convalescent stages of this and other Fevers, and their operation does not extend further than improving the appetite, and strengthening the stomach.

The flowers in the form of cold infusion, are useful in allaying bilious vomiting, and for lessening the irritability of the stomach.

Externally, they are useful in the form of fomentation, to inflamed tumors, to local pains, and as a discutient.

Anthemis Communis.

A species growing in the United States, inferior to the imported, but which by cultivation might be much improved. The flavor is not so agreeable, but their bitterness is more considerable.

Family *Gentianaceæ*—*Gentiana Lutea*—*Yellow Gentian*.

This plant is a native of the Alps, and is brought to us from the mountainous parts of Switzerland and Germany.

The root is the part used.

It is perennial, long, cylindrical, externally brown, internally yellowish.

Sensible properties—

Taste, an agreeable bitter.

Smell, little or none.

Description of the plant.

Medical application—

Employed for its tonic and stomachic operation in *Dyspeptic affections*, in the convalescence of fevers, and other cases of debility where our object is to give tone to the stomach.

It is the basis of most *stomachic* preparations.

As a simple bitter, the Gentian is rendered more grateful to the

stomach by the addition of an aromatic, and for this purpose orange peel is commonly employed.

A very pleasant and useful formula for administering this article is the following:

℞. Gentian root, sliced,	3 ii.
Dried orange peel,	3 i.
Cardamon seeds,	3 i.
Proof Spirits,	℥ii.—digest and filter for use.

Dose, 3 i. to 3 ss.

This preparation will be found useful as a tonic and stomachic, and may be very successfully resorted to, when such an object is to be obtained.

Stoughton's Elixir, or Bitters, is the same preparation, with the addition of the *Serpentaria*.

The Gentian root is also exhibited in the form of *infusion*, which is a very good preparation, and the extract.

The last is useful as a tonic, and is employed in conjunction with other medicines.

The dose of Gentian is from v. to x. grs.

An alkaline principle has been obtained from this substance, and called *Gentianine*.

Family *Simarubaceæ*—*Quassia Amara*, or *Excelsa*.

This tree rises several feet in height, and sends off many strong branches—the wood is white and light—the bark is thin, and of a grey color.

It is a native of Surinam, a province of South America, and also of some of the West India Islands.

The root, bark, and wood, have all been comprehended in the catalogues of the M. M., but the roots may medically be considered in the same light as the wood, and seem to differ from the bark in being less intensely bitter.

Sensible qualities—

Odor, none.

Taste, a pure bitter—both intense and durable.

The properties of this article are tonic, stomachic, and febrifuge.

It is less heating and oppressive than most other substances of this class, and can be taken with impunity by many patients, when Cinchona and the more powerful tonics bring on headache, uneasiness of the stomach, and febrile symptoms.

Medical application—

To cases of *weakened tone* of the stomach, brought on by excesses in eating and drinking, and from constitutional causes, as a relaxed state of the nervous system, this article has been highly beneficial—combined with an alkali, or absorbent, or the mineral tonics.

In *irritable states of the stomach*, occurring in temperate persons, when vomiting frequently occurs, not only of the food taken, but of the secreted fluids of the stomach, which states of the stomach are not unusual in persons laboring under Hypochondriasis, or in females of delicate habits, afflicted with Chlorosis, Leucorrhœa, or Amenorrhœa,

the infusion of this article will be found useful, combined with some absorbent medicine, especially when there is acidity present.

Forms of exhibition—

Infusion prepared as follows :

R. Rasped Quassia, ʒi.

Warm water, ℥i.—and to a portion of this poured off, add Carbonated Potash, or Soda, or prepared Chalk, and some aromatic tincture to render it more palatable.

Extract of Quassia—A useful article combined with other tonics.

Enema—In this form prepared, to remove Ascarides.

R. Quassia, rasped, ʒiv.

Water, ʒiv.—m. for an enema.

It will generally procure the expulsion of a large quantity of the ento-zoa.

This article is one of the best specimens of a purely bitter substance which we can present, it not possessing any astringency—hence it is not decomposed by the metallic salts, nor is it blackened by iron—it is, therefore, a good vehicle for a variety of mineral tonics, not undergoing any change of color.

Family *Menispermaceæ*—*Menispermum Palmatum*—*Cocculus Palmatus*—*Columbo*.

It grew originally on the Continent of Asia, and was from thence transferred to the Island of Ceylon, where it flourishes well, and has received the name of Columbo, from the principal town of that Island.

Description of the plant—

The root is the part employed in medicine, and comes to us in circular pieces, from the eighth to a quarter of an inch in thickness, and an inch and a half in diameter.

Sensible properties—

Taste, disagreeably bitter, and slightly pungent.

Odor, aromatic.

Medical properties—A mild, but powerful tonic, communicating vigor to the stomach when properly administered, without producing stricture, nausea, or oppression.

Useful in *Dyspepsia*, where a languid state of the stomach exists, attended with want of appetite, indigestion, nausea, and flatulence.

Cases of enfeebled digestion bear this substance with advantage, when most other tonics disagree.

Habitual vomiting, when it proceeds from a weakness or irritability of the stomach, from irregular gout, or other diseases, is much relieved by the use of Columbo root, in conjunction with aromatics, chalybeates, or the testaceous powders.

It has been recommended in diseases arising from a redundant flow of bile, and possesses considerable reputation in the bilious affections of hot climates.

It is spoken of in high terms by the writers on the East India diseases, in *Cholera Morbus*, in bilious *Diarrhæa*, and other affections, where there is an inordinate secretion of bile, for alleviating tormina,

checking the vomiting and purging, and quieting the inordinate actions of the bowels. It is but little employed for this purpose in this country.

In that highly irritable state of the stomach which occurs in the early *stages of pregnancy*, where nausea and sickness are the constant attendants of the early morning, where the sight of food is apt to produce vomiting, where want of appetite, or a deprived state of it occurs, the infusion of Columbo has afforded great relief to the patient, more particularly when the bowels are kept relaxed by Magnesia.

Forms of administration—

Powder, infusion, and tincture—the first often preferred.

The tincture is a very pleasant preparation, and a useful tonic is furnished by this article as follows :

℞. Root of Gentian,	
Root of Columbo,	
Bruised bark of Cinchon, each	3 i.
Cardamom seeds,	3 ss.
Best Brandy,	℥ i.

Macerate for several days and strain.

To which may be added—

Comp. Spirits of Lavender,	3 ss.
Wine of Iron,	3 i.

For nervous and delicate habits.

The dose of the powder is grs. xv. to 3ss.

The infusion from ʒiiss. to ʒii.

It may be given in combination with iron, with aromatics, rhubarb, or the saline purgatives as may be required.

The powder may be given with any aromatic tincture, as peppermint water, cinnamon tea, &c.

With Columbo, in addition to other articles, is prepared a valuable febrifuge, and tonic, in *Intermittent Fever*.

It is as follows :

℞. Powdered Columbo,	3 ii.
Sulphate Quinine,	3ss.
Piperine,	3ss.
Or,	
Oil of Black Pepper, gtt. x.	
Powdered Gum Arabic, ʒiii.	
Mint Water,	ʒviii.

Dose, 3ss. to 3 i., every two or three hours, or in chronic cases three or four times a day.

Family *Gentianaceæ*—*Frasera Caroliniansis*—*American Columbo*.

There grows in this country a species of Columbo which has been said to equal the imported.

Description of the plant—

The root, which is large and fleshy, has a considerable degree of bitterness, and when cut in slices, and dried, has some resemblance to the imported Columbo.

It has been substituted in the shops for the imported article, to which, however, it is inferior.

By cultivation its properties may be improved.

Forms of exhibition—

Powder and infusion.

The dose of the powder is xxx. grs.

The infusion is prepared as follows :

℞. Fraxea C., ʒi.

Hot water, ℥i.

Dose, a wine-glassful several times a day.

Family *Rutaceæ*—*Galipea Cusparia*—*Bonplandia Trifoliata*, *Angustura Bark*.

It is a native of South America, and is frequent in the woods near Carouy and Alta Græcia.

It grows to the height of from sixty to eighty feet, of an elegant and majestic form.

The bark is only one or two lines in thickness, and is sometimes cracked externally. It is in flat pieces of various sizes, having an external greyish and rough surface from its epidermis, internally of a brownish yellow color.

Sensible properties—

Taste, somewhat bitter and aromatic.

Odor, peculiar.

It was introduced as a remedy for *Intermittent Fever*, and supposed to be sufficiently powerful to supplant the *Cinchona*.

These statements have not been confirmed, and it is but little employed by the practitioners of this country.

Very serious consequences have sometimes arisen from employing the *false Angustura*, which is sometimes mixed with it, and which has been ascertained to be the bark of a species of *Strychnos*—it has fallen into general disuse.

Family *Gentianaceæ*—*Ophelia Chirayta*—*Chirayta Gentiana*—*Worm-seed Plant*.

Indigenous to the mountains of the westward of the Ganges.

It is in long, cylindrical stalks, externally of a brownish color, whitish within.

Sensible properties—

Taste bitter, without much aroma.

It yields its power to water.

Medical properties—Tonic. For further particulars, refer to Sigmond's Lectures.

In its properties, as well as its botanical affinities, it is closely allied to *Gentian*, and it is unnecessary to enter into its consideration.

MINERAL TONICS.

AT the head of this class must be placed Iron and its preparations—and this, whether we consider the importance of its tonic effects, or the extent and variety of its remediate applications. Iron is found in great

abundance in different parts of the globe, in combination with a variety of substances—as it is the most useful, it is also the most common of all metals. It seems to be even a constituent of organic substances and of the blood, and has hence been supposed to serve some important purpose in the animal economy. When given medicinally, the effects obtained from it are those of a tonic. It increases the vigor of the circulation, causes the blood to assume a more florid hue, promotes digestion, excites the secretions, or restrains them when they have been morbidly increased, and by its astringency, checks profuse evacuations, and counteracts the tendency to hæmorrhage. It is in diseases of debility that it is employed, and as its operation is only gradual, chiefly in chronic affections, as Dyspepsia, Hysteria, Amenorrhœa, Leucorrhœa, Menorrhagia, Scrofula, &c. In weak states of the constitution, characterized by a languid circulation, a pallid countenance, and other symptoms, Iron and its preparations will be found extremely useful. Such is the general character of this metallic substance in its operation—and such the class of diseases to which it is chiefly applicable. There are some particularly, in which its good effects are more especially manifested, and these we shall enumerate.

As we have already mentioned, some of the preparations of Iron were employed at a very early period in hæmorrhage, and their good effects in these cases seem to depend upon their tonic and astringent operation.

Where the hæmorrhage depends upon general flaccidity, where the effusion of blood seems to be connected with a laxity of the animal fibre, accompanied with a pale and cachectic state of the system, Iron and its preparations are likely to be the most effectual remedies.

To give a particular instance of its efficacy in this species of hæmorrhage—*Menorrhagia* is often little more than a uterine hæmorrhage, and is frequently connected with a relaxed and debilitated state of the system, as paleness of the face, feebleness of the pulse, unwonted fatigue on exercise, swellings of the lower limbs, &c. To this may be added, the chronic uterine hæmorrhages which occur in females somewhat advanced in life, and when they occur in the same habits, are to be treated with the same remedies. In these cases, the preparations of Iron are very useful, and may be given in combination with bark.

In *Retention of the menses* depending upon a weakness of the vessels of the uterus, carried to the extent of producing chlorosis, Iron may be considered as a very useful remedy. In this affection there is usually a great want of tone, and activity, in every part of the system, and every thing indicates languor and relaxation of the vital energies.

In *Amenorrhœa* connected with debility, and relaxation, the same remedy will be found useful. In these cases Iron exhibits an aperient and astringent operation, according to the state of the constitution. Where the retention or suppression of the menses depends upon a weakness of the vessels of the uterus, the chalybeate medicines, by invigorating the force of the vessels, may cure the disease, and thereby appear to be aperient; and, on the contrary, in *Menorrhagia*, where the disease depends upon a laxity of the extreme vessels of the uterus, Iron

when exhibited, by restoring their tone, may show an astringent operation.

Besides these diseases, chalybeate medicines are often exceedingly useful in weakness of the stomach and bowels, combined with bitters.

The preparations of Iron have also been recommended in Dropsy, and considerable success has occasionally followed their use. Iron has also been resorted to in other diseases of the class *Cachexia*—as Scrofula, Rickets, &c. In some obstinate phagedænic ulcerations it is employed, and of late its use has been extended to the treatment of cancer. By Dr. Carmichael, of Dublin, the several preparations of Iron have been recommended in these affections in whatever part of the body they are situated—internally as well as externally employed. Many cases of the success of the practice are detailed in his work, and it is confidently stated, that the beneficial effects which follow their use, are an increase of appetite, an alleviation of pain, an amendment of the discharge, and an ultimate cure in many cases. The Carbonate is the preparation commonly preferred for internal use, and it should be given in small doses, and frequently repeated. As an external application, it is mixed with water to the consistence of a thin paste, with which the surface of the ulcer is covered, and the application is renewed twice in the twenty-four hours.

Where it does not cure, the treatment, it is said, seldom fails to produce ease, and a healthy discharge, to correct all fetor, and supersede the use of greasy and offensive applications. Such is a brief view of the practice recommended by Dr. C. Whether it is calculated to afford the benefits enumerated, more extensive and diversified experience with it is wanting in this country, before we can pronounce upon the value of the practice. One circumstance is necessary to its success, which is, that it be long and perseveringly employed. For further particulars, I must refer you to his work on cancer. I shall proceed to the preparations of this metal, and shall only mention such as are considered the most important, and fully capable of affording all the advantages which can be derived from chalybeate medicines.

Limatura Ferri—the Filings of Iron.

Iron in its pure state, proves active upon the system, and in the state of minute division, as that of filings, may be productive of good effects as a medicine. That it undergoes solution, we know from the circumstance of its producing blackness of the stools, which affords a presumption of its previous solution in the acids of the stomach.

As mechanical mischief may sometimes arise from metallic filings, it is preferable to exhibit the metal already oxidized, or in some of its soluble combinations, than to trust to the accidental solution of a portion of it in the stomach.

Raciborski recommends the impalpable powder of Metallic Iron as a tonic in anæmia.

It is given in doses of ii. grs. made into a pill, and taken daily. To be continued for months.

The Carbonate of the Protoxyd of Iron—Rubigo Ferri—Carbonate, or Rust of Iron.

It is obtained by precipitation, as seen by reference to the Dispensatories.

This preparation is more active than the pure metal, and less irritating than the saline preparations.

This is, perhaps, the best preparation of Iron in the majority of cases, for which these medicines are thought necessary.

It has but little taste, and generally agrees well with the stomach.

It is apt to produce costiveness, and when this habit of body previously exists, it of course increases that state of the bowels to such a degree, as to render it necessary to have recourse to some other preparation of Iron, or to combine with it some gentle cathartic.

Medical applications.

It has been recommended in *Cancer*, by Mr. Carmichael.

In *Tic Douloureux* in large doses. Ninety-eight cases, says Dr. Hutchinson, the full reports of which I have before me, were cured by the use of the Carbonate of Iron, most of them after the persevering employment of other remedies.

In *Nervous* and *Hysterical* diseases.

Sydenham was a great advocate for the use of the Rust of Iron in the above diseases, and prescribed some chalybeate medicine to be taken thirty days.

He gave the preparation in substance, or in a syrup, prepared by infusing filings of Iron in Rhenish wine, without heat, until it is sufficiently impregnated, and afterwards straining it off, and with a sufficient quantity of sugar, boiling to the consistence of a syrup.

Forms of administration—

The Carbonate of the Protoxyd of Iron is given in powder or pills, combined with bitters and aromatics as a tonic, and with aloetics, valerian and myrrh, when directed more immediately to the uterine system.

Also in the form of chalybeate wine, prepared as stated on a former occasion—vide Emmenagogues.

Formula for the exhibition of this article :

R̄. Carbonate of Iron,

Powdered Ginger, each, grs. v.

To be made into a powder, and repeated several times a day.

Or,

R̄. Carbonate of Iron,

Powdered Columbo,

Powdered Ginger, each 3 i.

Mix and divide into xii. powders—one three times a day.

Or,

R̄. Carbonate of Iron, 3 i.

Pill of Aloes and Myrrh, 3 ss.

Mix and divide into xviii. pills—one to be taken three or four times a day.

Saline preparations of Iron.

In these, we have an additional property added, viz: an astringent to

the tonic operation, and the sphere of their application considerably enlarged.

Proto-Sulphate of Iron—Coperas.

Preparation.

It is one of the most active preparations of the metal. Its employment requires more caution than the preceding article, as when given in large doses it is apt to occasion pains in the stomach and bowels, and may often excite alarming symptoms.

For its astringent operation, has been employed in the complaints of the bowels, as the secondary stages of Cholera, Diarrhœa, &c.

Forms of exhibition—

In solution—not commendable, in consequence of the facility with which in this state it undergoes decomposition.

In pills, conjoined with the aromatics, or the vegetable bitters.

Formula :

℞. Sulphate of Iron,
Ext. of Gentian, each, 3 i.
Oil of Mint, gtt., vi.
Syrup of Ginger, as much as is sufficient.

Make into a mass and divide into xxxvi. pills.

Dose, two or three pills, to be taken three or four times a day.

Used also in solution as a wash for Fungous Ulcers.

The dose of this article is from one to five grs.

Prussiate of Iron—Ferrocyanide of Iron.

A compound of cyanogen, with the sesquioxide and peroxide of Iron.

Preparation.

Agrees with the other preparations of Iron in its general tonic operation.

Employed in the treatment of *Intermittent Fever*.

The advantages attending its use are, the smallness of the dose required, little taste, or smell, and more prompt in its operation than Cinchona.

Useful in the Fevers of children, and may be employed when other articles would be rejected.

The dose iv. to vi. grs. several times a day.

Tincture of the Sesquichloride of Iron, or Muriated Tincture of Iron.

Preparation.

Whenever the full operation of iron is desirable, this article is resorted to, and in most cases it will be found to agree very well with the patient.

It is employed in *Leucorrhœa* and *Amenorrhœa*, when connected with much feebleness and general relaxation of the system.

It is known by the name of Steel drops, and from its general utility, uniting all the virtues of iron in so active and agreeable a form, is entitled to a conspicuous station in the M. M.

The following is a useful form of exhibition :

℞. Muriated Tincture of Iron, gtt.	vi.
Infusion of Quassia,	3 vi.
Cinnamon water,	3 vi.
Tincture Columbo,	3 i.

Mix for a draught—repeated several times a day.

The dose may be gradually augmented, but is apt to disagree in large doses.

Per-Nitrate of Iron—Sesqui-Nitrate of Iron, already referred to.

Iodide of Iron—already referred to.

Bromide of Iron.

An active tonic—useful in Scrofula, Chlorosis, and Amenorrhœa.

Forms of exhibition—

In solution, or in pills.

℞. Bromide of Iron, grs. xxx.

Distilled water, 3 i.

Dose, xv. to xx. drops, three times a day.

In pill in the dose of i. to ii. grs.

Acetate of Iron.

Preparation—an agreeable chalybeate, but possesses no particular virtue, which can give it any advantage over other medicines of the same class.

Dose of the solution of the Acetate of Iron, x. to xxv. gtt. in water.

Tartrate of Iron and Potassa.

An agreeable chalybeate. From its slight taste, and ready solubility, it forms one of the best ferruginous preparations for exhibition to children.

Recommended by Ricord, in the treatment of Phagedenic ulcerations of the Penis. All other remedies, he says, are feeble and unimportant. He gives it in large doses, 3 ss. to 3 i. daily. The effects of such doses are soon displayed, as early as the third day, and the ulcer shows improvement.

As a local remedy, a solution of the Tartrate of Iron and Potassa is recommended by the same authority.

Citrate of Iron.

One of the most agreeable of the chalybeates, and equally effective with any.

Given in the quantity of x. grs. three times a day.

Tartrate of Iron.

Used in all the cases in which the Carbonate of the Protoxyd has been recommended, and chiefly in Chlorosis.

It is given in doses of vi. to x. grs., three times a day.

Copper.

This metal is not like the greater number of metals, insipid, and inodorous, but has an unpleasant, styptic taste, and when rubbed, a perceptible smell.

In its pure, metallic state, it exerts but little action on the system, and when poisoning arises from the use of copper vessels, it is in consequence of a want of cleanliness, by which they become coated with the green carbonate.

Copper exists in various organic and inorganic matters.

It has been detected in several vegetables—in sugar, coffee, wheat flour, and cheese.

That it circulates in the human blood, and is found in the milk, and other fluids of the body.

Sulphate of Copper.

Employed in the treatment of *Intermittent Fevers*, either alone, or as an auxiliary to bark. It is given in small doses, and even in these doses it sometimes excites vomiting.

The type of the fever to which it is best adapted is the *Quartan*, and is deserving of some attention. Formula :

℞. Sulphate of Copper, grs. iv.

Ext. Cinchona, or Gentian, grs. xxxii.

Mix and divide into xvi. pills—one four times a day.

Employed in other periodical diseases, as *Epilepsy*.

For its astringent properties it has been recommended in *Hæmorrhages*, and for this purpose it is much used in various parts of the Union.

It has been introduced as a remedy in *Chronic Diarrhœa*, combined with opium. Formula :

℞. Sulphate of Copper, gr. $\frac{1}{2}$.

Opium, gr. $\frac{1}{2}$.

Make into a pill—to be taken two or three times a day.

As an external application—

As a wash in *Syphilitic*, and *obstinate* ulcerations, in the proportion of grs. v. to ʒi. of water.

As an injection in *Gleets*, and in *Leucorrhœa*.

As a gargle in *ulcerated Sore Throat*.

Cuprum Ammoniatum—Ammoniated Copper.

Preparation.

This article was first recommended by Dr. Cullen, who considered it a milder preparation than the combination of Copper with an acid.

It has been employed in *Nervous* and *Convulsive* diseases, as *Hysteria*, *Chorea*, *Epilepsy*.

In the latter disease it is given in small doses, combined with the Extract of Valerian.

Externally, as a wash for cleansing foul ulcers, and as an escharotic.

Zinc—

Oxyl, or Flowers of Zinc—Preparation.

This article has been much esteemed for its tonic and anti-spasmodic properties, and has been applied to several forms of disease.

In *Epilepsy*—The treatment which will be found often efficacious, is diminishing the volume of fluids by taking blood in small quantities,

as frequently as circumstances will admit—an occasional purgative, dieting, regularity in the operation of the bowels, and small doses of the Oxyd of Zinc.

Employed also in *Hysteric* affections, connected with relaxation and debility.

In *Chorea St. Viti*, it is entitled to a favorable consideration. At the Bristol Infirmary, Dr. Beddingfield tells us, that out of forty cases of Chorea that presented themselves, thirty-nine were cured by the Oxyd of Zinc, given in doses of v. grs. three times a day, gradually increasing to a scruple.

We have employed it in these cases with advantage.

Externally, employed in the form of powder as an absorbent, and mixed with a simple ointment, as a mild astringent application to chronic ophthalmia, herpetic, and other cutaneous diseases.

Dose, ii. to v. grs., gradually increased to a scruple.

Sulphate of Zinc.

Employed as a tonic in small doses.

As a *tonic* and *astringent* in chronic *Dysentery*, and with bitters as a tonic in *Dyspepsia*. Given in such doses as to obviate nausea.

In *Intermittents*, combined with a narcotic, as Extract of Hyosciamus, has been proposed as a substitute for Peruvian bark.

In *Remittent Fevers*, a useful and valuable remedy—also combined with the Hyosciamus. Thus combined, it is not so liable to irritate the stomach, and has succeeded after other articles had failed.

Externally, employed for various purposes—as a gargle in ulcerated Sore Throat, as an injection in Gleet. Formula:

℞. Sulphate of Zinc, xx. to xxx. grs.

Rose water, ℥ viii.

Honey, ℥ i.

Mix as a gargle—to be used several times a day.

The dose of the Sulphate of Zinc, as a tonic, is from one to two grs., given in the form of pill.

Impure Oxyd of Zinc—Lapis Calaminaris—Tutty—Chiefly used as an ingredient in making ointments.

Nitrate of Silver—Preparation.

It has been employed in *Epilepsy*, in *Dropsies*, in *Angina Pectoris*, and other *nervous diseases*.

In the former disease it has acquired some reputation, given in small doses as the $\frac{1}{8}$ of a grain, three or four times a day, in pills, in which form the stomach will bear three times as much as in solution.

Under its use, the paroxysms have at first diminished in violence, and then in frequency, until the patient recovers, and the medicine acts most favorably when the bowels are moderately acted upon.

Best adapted to those cases which arise from too great irritability of the nervous system, and to that state which approaches hysteria. A disagreeable effect follows its use, viz: the discoloration of the rete mu-

cosum—those parts most exposed to the light, acquire a leaden grey, or livid color, and which has in some cases continued permanently.

Besides the diseases mentioned, it is very valuable in many of the diseases of the Alimentary Canal.

In *Chronic Diarrhœa* and *Dysentery*.

In *Cholera Infantum*.

In *affections* of the Throat.

In *Cynanche Laryngea*.

In *Diphtherite*.

In simple *ulcerations* of the Throat.

In *Venereal ulcerations* of the same.

Nitrate of Silver has been recommended in the treatment of *Pertussis*, or *Whooping-cough*—applied in the form of solution to the Larynx and Glottis, by a whale-bone with sponge at the end.

As an external agent, it is no less important.

In inflammatory affections of the *Eyes*, or *Ophthalmia*.

It is advantageously employed for the purpose of destroying the granulated surfaces of the conjunctival membrane, the consequence of previous inflammation, and particularly in that species called the *Egyptian Ophthalmia*.

In ordinary *Chronic Inflammation*.

In all these cases, after previous proper depletion, the most beneficial effects have been produced by the use of this article, either in the form of solution, or ointment.

The manner of employing the solution in these cases.

Formula for the solution :

℞. Nitrate of Silver, grs. ii. to viii.

Distilled water, 3 i.

To be dropped upon the ball of the eye, or applied by means of a camel's hair pencil.

The ointment is prepared as follows :

℞. Nitrate of Silver, grs. ii. to xv.

Solution of Acetate of Lead, gtt. xv.

Spermaceti ointment, 3 i.

The Nitrate of Silver is first powdered finely, and mixed with the ointment on a slab, the solution being added afterwards.

In using the ointment, introduce a portion from the size of a pin's head, to a pea, between the eye-lids. The eye-lids being closed, are to be gently rubbed with the finger, so as to diffuse the dissolving ointment over the whole surface of the conjunctiva. The application causes pain, but that which previously existed, is found to have been relieved, if not removed. The application is to be repeated in two or three days, according to the effects.

The ointment, or the solution, has also been applied to *Syphilitic ophthalmias*—to weak eyes—to *nebulæ*—to *opacities of the cornea*.

Nitrate of Silver has been recommended in *Erysipelas*.

A line of demarcation is made around the diseased surface, by which the action is prevented from spreading.

It may also be applied directly to the surface, without any fear of producing mischief.

In circumscribing the Erysipelas, care should be taken that a circle be drawn all around the portion of the diseased skin—if there is any breach of continuity, it may cause the disease to spread.

Nitrate of Silver has been employed in *Leucorrhœa* in the form of injection. Where the system is not plethoric, or the vaginal discharge is not connected with pregnancy, it may be relied upon as a very useful and valuable remedy. Cleanliness should be particularly observed, by frequent washing in tepid water, and afterwards an injection of the Nitrate of Silver in the proportion of ii. to viii. grs. to water ʒi., will be found more speedy and effectual, than most of the remedies usually resorted to in this troublesome affection.

In using the solution, a bit of sponge firmly tied to a piece of whalebone, moistened with the solution, is to be carefully introduced into the vagina up to the os uteri, or a syringe of glass, or bone, employed.

Nitrate of Silver may also be employed in *ulcerations* of the *Cervix Uteri*, with great success. In such cases it is applied by the assistance of a speculum.

Nitrate of Silver is employed in *Gonorrhœa*. The analogy between this disease and purulent ophthalmia, might have led to its employment, for they are both purulent inflammations of mucous membranes. Other salts, as Sulphate of Zinc, Copper, &c., often excite more or less inflammatory action in the urethra, but the Nitrate, instead of exciting more, generally diminishes inflammation, and on this account may be employed in the very commencement of the disease. We have used this remedy for several years with much more success than any other injection, and have had no reason to believe that it causes hernia humoralis, or any other bad consequence.

The proportions used are two to four grains to the ounce of water, the strength being regulated by the greater or less inflammation of the parts.

In *Chilblains*—In this disorder it is often very effective. A pretty strong solution is required, from x. to xxx. grs. to an ounce of water—occasionally it is used still stronger, and even a saturated solution, which produced a permanent cure.

In *Hæmorrhoids*—An ointment composed of from v. to x. grs. of the Nitrate, very finely powdered, to the ounce of lard, succeeds in many cases where the hæmorrhoids are recent.

When hæmorrhage arises from internal piles, or from a congestion of the lining membrane of the anus, the solution, in the proportion of from x. to xxx. grs. to an ounce of water, injected with a syringe, is a preferable method.

Nitrate of Silver in the form of solution, or in substance, gently applied, is a valuable article to *excoriated nipples*.

Its employment affords more relief than any other application.

Nitrate of Silver of great utility in the form of injection, in chronic inflammation of the bladder.

Oxyd, or Sub-Nitrate of Bismuth—Preparation.

It has been recommended in spasmodic pain of the stomach and bowels, arising from organic debility, and a relaxed and emaciated constitution.

Particularly well adapted to those dyspeptic cases, where pain follows the introduction of food into the stomach, either in solid or fluid form, attended with sickness and vomiting. When to these symptoms there is added flatulency, acid eructations, eardialgia, the Oxyd may be employed with great advantage.

Case related of the influence of this medicine in disordered states of the stomach.

In that distressing symptom of Dyspepsia, *Pyrosis*, or *Water Brash*, which consists in an eructation of watery fluid, usually of an insipid, but sometimes of an aerid nature, this medicine is of considerable service.

The dose is grs. v., mixed with Gum Arabic, Tragacanth, or white sugar, gradually increased to xx. grs.

Aurum—Gold.

Preparations.

1. Gold in minute division.
2. In the state of an Oxyd.
3. The Oxides combined with Ammonia and Tin.
4. In combination with Hydrochloric Acid and Soda, forming the Chloride of Gold and Soda.

These preparations have been recommended in the various forms of *Syphilis*, as being safe and effectual. That they possessed advantages over Mercury, inasmuch as the patient was not subjected to the unpleasant effects of pytalism, nor the other inconveniences which follow the use of the medicine.

Nor subjected to any restraints, either as related to business or diet.

In Europe, these sanguine expectations have not been realized, and it soon fell into neglect.

In this country it has been fairly tested by the late Dr. Mitchell, in the New-York Hospital, and from his experiments it was thought equal to mercury in the primary stages of the disease—but where secondary symptoms have supervened, the gold cannot be depended upon for a radical cure.

With this restriction, therefore, of the medicine, joined with its expensiveness, its use was abandoned, and it appears to have fallen into general neglect.

The doses—

The Muriate in doses of the $\frac{1}{8}$ of a grain in pills.

The Oxyd in doses of the $\frac{1}{2}$ of a grain to ii. grs.

The Metal in a state of minute division to the extent of iii. grains a day.

Arsenic—Arsenious Acid.

Extensively diffused throughout nature, combined with various metals, and with sulphur.

From these it is separated by sublimation.

Sensible properties—

It has, when pure, a shining, semi-vitreous appearance.

Color, white.

Taste, corrosive and aerid, with some degree of sweetness.

Medical uses—

Has been long known in medicine, and was noticed by the Greek and Arabian physicians, and prescribed by Avicenna almost eight hundred years ago.

Chiefly employed as an external application.

In modern times particularly noticed, and its use extended to diseases.

It has been, and continues to be, the basis of *Fever nostrums*, and it was from observing the efficacy of a medicine which acquired much reputation as fever drops, that Dr. Fowler was led to examine its composition, and from thence to introduce into practice his arsenical solution.

In *Intermittent Fevers*, deserves a conspicuous place among the remedies for this disease.

It is not applicable to all cases.

It is inadmissible in debilitated habits of body, attended with a weak, feeble pulse, and where there is a scorbutic tendency.

Its operation is not altogether of a tonic nature, and its present arrangement doubted by many.

During its exhibition, it produces nausea, lassitude, debility, œdematous swellings of the face and extremities. It has been said to injure the tone of the stomach, and to produce vertiginous affections, and paralysis, but the last objections are unfounded.

The constitutions to which it is best adapted, are those unbroken by the attacks of the disease, neither very irritable or debilitated, the pulse full, soft and regular, and no organic disease existing.

Of its administration—

It is most advantageous to begin with a small dose, and to increase it until it shall affect the stomach slightly. If the system is much disordered by its use, to discontinue it for a day or two, or to diminish the dose.

It is proper to continue the medicine after the cure is apparently complete, as by this practice relapses may be prevented.

Of the form of administration—

That of the arseniate of Potash, or Fowler's mineral solution.

Preparation.

The doses will vary from ii. to xii. m., two or three times a day.

The times of the day for taking the drops, will be six o'clock in the morning, two o'clock in the forenoon, and ten o'clock at night. These hours are to be adhered to, whether they coincide with the paroxysm of fever, or not.

They are to be continued for five days, the paroxysm being suspended, the medicine is then to be omitted for two or three days, and repeated for three days more to prevent a relapse.

The cure may then be completed by the use of Peruvian bark, or other Tonic.

When the Arsenic exhibits its poisonous effects, the symptoms are—nausea, accompanied with slight griping and purging, swelling of the integuments of the body, particularly the face, uneasiness at the stomach, an eruption like the nettle-rash, and, in a few instances, headache, sweats, and slight tremors.

When these symptoms manifest themselves, the medicine should be omitted, and gentle aperients, opiates, and other means be employed.

Arsenic is also exhibited in substance in the form of a pill, in the following manner :

R \acute{e} . Arsenious Acid, gr. 1-16.

Powdered Opium, gr. ss.

Mix and make into a pill—to be repeated three times a day.

In *Remittent Fevers*—

Also spoken of very favorably, and as the circumstances of its administration are pretty similar to what has been directed in the former disease, we need not enter further into particulars.

In *Typhus Fever*—

Recommended by Dr. Ferriar.

In the last stage of *Typhus*, he says, when the usual stimulants had no effect in rousing the power of life, or of lessening the black incrustation on the tongue, the Arsenical solution has uniformly had the effect of causing the fever to give way, and with it an improved appearance of the tongue.

The Arsenical practice in *Periodical Fevers* has been resumed, particularly in the French Hospitals, to the exclusion of Quinine. It is given in doses of 1-5 of a grain every four hours, after the administration of an emetic.

This practice has been found successful in cases where Quinine had been administered, and where relapses have occurred.

It is to be continued in one or two doses, for several days after the paroxysm has been suspended.

Statistical results favorable to its use—

The mean duration of patients in the Hospital, treated for Intermittent Fever, when Quinine is employed, was thirty days.

The mean duration with Arsenic is twenty-two days.

The medicine is eliminated from the system by the usual emunctories, and does not accumulate, as has been asserted by some.

In *Periodical Headaches*, Arsenic has also been employed, and with great advantage, several cases of which disease are recorded as being successfully treated.

The mineral solution is well adapted to these cases, succeeding often after the bark has failed.

Rheumatism is also another disease in which this article is useful. It is a less ambiguous medicine than Peruvian bark.

Arsenic has been recommended in *Whooping-cough*, and in various spasmodic diseases—as *Chorea*, *Epilepsy*, *Tetanus*, *Asthma*—its action is very indeterminate in them.

In *Cutaneous affections*.

We may state, that obstinate diseases of the skin are much under the control of this medicine. These are *Leprosy*, *Ichthyosis*, *Herpes*, *Elephantiasis*.

In similar affections of a *Syphilitic* character, where mercury has been unavailing, this article has been employed with propitious results.

In *Buboes*, that after ulceration refuse to heal, and even assumed a malignant aspect, few remedies so powerful as the internal use of Ar-

senic, (always excepting the preparations of Iodine, and particularly the Iodide of Potassium.)

Application of Arsenic to the treatment of *Cancer*, we do not say cure—for much as the powers of this article have been extolled in this disease, it is entitled to very little confidence, and we would caution you not to hazard an appeal to it, while the more speedy and effectual mode of treatment by excision can be practised.

It has been recommended as an antidote to *Hydrophobia*.

Poisonous operation of this article—

The consequences which follow the introduction into the stomach in the quantity of a few grains or upwards, are a most horrible, and indescribable anxiety at the pit of the stomach, to which succeeds a very acute burning pain in this organ, generally attended with violent retching, and vomiting, whereby the life of the sufferer is sometimes preserved, owing to the rejection of the arsenic. This is soon followed by some purging, and the pain proceeds with increased violence to the bowels, and almost the whole of the alimentary canal. To these succeed convulsive tremors of the limbs, cold sweats, &c. The pains soon become so much augmented that insensibility succeeds, coldness and stiffness of the limbs take place—the eyes are blood-shot and glassy—the patient is unable to swallow—death terminates his sufferings.

Examinations after death exhibit the stomach and intestines in a highly inflamed state, the mucous membrane is soft and pulpy, blood-vessels turgid, and sometimes spots of extravasated blood.

The consequences of its external application, are no less destructive and severe.

Certain peculiarities attend the operation of this poison, which it may be useful to notice. Persons who have recovered from a large dose, seldom regain their previous health and strength, but become sallow, emaciated, and enfeebled. Obstructions in the liver are apt to ensue, attacks of jaundice occur, and the teeth which were before remarkable for their whiteness, become encrusted with a black scale, and some of them decay without pain.

Digestion is often weak, and food after remaining a few hours on the stomach, is not unfrequently returned crude and undigested.

The treatment to be pursued when a large dose of Arsenic has been taken—

Emetics, particularly of the vegetable character, are to be employed.

After vomiting, large draughts of milk should be given.

It acts by its coagulation, in enveloping the poison, and thereby promoting its discharge.

Of the Antidotes, Sulphur, and the Sulphurets of Potash and Soda, have been proposed.

Magnesia, by Mr. Hume—Charcoal, by Mr. Bertrand.

Of late years, the Hydrated Peroxide, or Tritoxide of Iron, taken in large doses, suspended in water.

The chemical change produced, is the conversion of the arsenious acid into an arsenite of Iron.

Arsenic has been known to produce a poisonous operation upon the system, applied externally to wounds and ulcers, and as a wash to the

skin. Several cases are related of these effects being produced, by applying an ointment containing arsenic to the head, or using a wash of arsenic for the cure of itch.

A case related from Sir A. Cooper's Lectures.

MINERAL ACIDS.

Sulphuric Acid—Preparation.

Properties—Tonic and Astringent, and is employed pretty extensively in diseases, being useful in restoring tone to the digestive organs, and strengthening the appetite.

The acids tend to check fermentation in weak stomachs, and thereby counteract morbid acidity of the first passages.

They also resist the digestive process, and while they correct the acetous fermentation, they also improve the tone of the bowels.

In *Hæmorrhages* it is a valuable medicine, and in debilitating discharges of every kind.

In *Hæmoptysis*, useful as a secondary remedy, after more active means of depletion.

It is used in similar circumstances in *Menorrhagia*, and is employed with very good effect in checking the *colliquative sweats* in Hectic Fever.

Externally it has been recommended in various cutaneous and eruptive diseases, particularly in Scabies, or Itch, as a substitute for Sulphur Ointment, either diluted with water, or mixed with lard.

Forms of exhibition—

The diluted Sulphuric Acid—The dose x. m., with water sufficient to be pleasantly acid; or,

The Elixir of Vitriol—for the preparation, see the Dispensatory.

The dose is from x. to xv. m., two or three times a day.

It is a useful article to be added to infusions, to which we wish to unite the Sulphate of Quinine.

Nitric Acid—Preparation.

Employed as a tonic in several cases of general debility, and from it much advantage has been derived.

It is given largely diluted with water, and rendered agreeable to the patient, by the addition of saccharine substances, it may be taken freely, and will be found a pleasant medicine.

In the same state of the constitution, connected with *hepatic derangements*, attended with distressing nervous symptoms, it is used with benefit in the place of bark, or other tonics.

In *chronic obstructions of the liver*, of such frequent occurrence in warm climates, and as a consequence of Bilious Fevers, it will be found useful for its tonic and alterative operations upon the secretions of the liver, which though allied to mercury, is indeed in some cases superior.

It is useful in curing some of the symptoms of *secondary Syphilis*. Most of us may have had occasion to observe, that in this disease mercury not unfrequently ceases to produce any salutary effects, and that it even aggravates the patient's sufferings by the peculiar symptoms which it produces. Such occurrences are not unfrequent, and the specific operation of mercury is not exercised, either from the long continuance of its use, or from the system being too much debilitated. It is here that the good effects of Nitric Acid are exhibited, and it will be found effectual in lessening the pains of the limbs, in causing the ulcers to heal, the blotches to become less vivid, and finally to fade, and to improve the general vigor of the system.

It is incapable of curing the disease permanently, and seldom resorted to during the primary stage.

Externally, applied as a wash to syphilitic ulcers—to certain chronic ulcerations—for checking gangrene of a part, and producing a slight stimulus.

When used, it is diluted largely with water, 3i. to a quart of water. Forms of exhibition—

Generally in form of solution, in the proportion of 3i. to a quart of water, sweetened with syrup, and this quantity taken in the twenty-four hours.

Nitric Acid united to the *Muriatic*, forming the *Nitro Muriatic Acid*, has lately been applied to the surface of the body in the state of bath, largely diluted with water.

Proposed as a substitute for the internal use of mercury, or the acid preparations, when these substances are inconvenient to be taken, or productive of distressing symptoms.

Employed whenever the mercurial preparations are indicated, with this difference, that in cases where they are injurious from delicacy or peculiarity of constitution, or other causes, the Nitro Muriatic acid bath may be employed with safety and effect.

It seems to affect in a peculiar manner the glands, and to alter their secretions, and upon this operation a great part of its value in derangements of the liver depend.

It is particularly in *Chronic Hepatitis*, and in functional derangements of this organ, that its good effects are exhibited, and the most effectual and safest remedy.

The manner of using the bath—

From our experience with it, would recommend it to your attention as a very useful auxiliary remedy.

It will be found best adapted to cases which have already been under the mercurial influence, but in which mercury disagrees, or where the prejudices of the patient are so violent, that it cannot be urged to the extent of producing all its beneficial effects.

The bath is also useful in paralytic affections of the limbs, as the irritation which it excites upon the skin will be found to relieve the distressing sense of coldness and numbness, which are so much complained of, and to infuse warmth, and some little animation in the enfeebled member.

The following is the formula for the use of the Acid :

R. Nitric Acid,	3 iv.
Muriatic Acid,	3 iv.
Water,	3 viii. m.

3i. of this solution to a gallon of warm water, will form a bath of medium strength, and is commonly employed. The proportion may be increased half an ounce, or diminished the same quantity, according to the delicacy, or other peculiarity of the patient.

When the bath cannot be used, the same beneficial effects are produced by immersing the feet and legs into a tub, containing a mixture of the same strength. The feet and legs are kept immersed in the bath half an hour, according to the sensibility of the patient's skin.

Sponging the skin with the solution gives rise to the same effects with bathing, and is more conveniently applied. Fifteen or twenty minutes may be employed in the sponging, though a much less time has been found to produce the same results.

The constitutional effects of the bath—

A sensation of uneasiness is produced in the mouth after it has been used eight or ten days.

The appetite is improved—digestion is performed with less uneasiness, and the functions of the liver restored to a more healthy state.

Muriatic, or Hydrochloric Acid.

Preparation.

This acid is very commonly used to diminish acidity of the stomach, by checking the process of the acetous fermentation, and give energy to that organ.

It is most useful as a Lithontriptic.

It is possessed of anti-septic properties in a considerable degree.

It is in most repute for purifying foul wards and chambers.

Diluted very freely with water, it is employed as a gargle in ulcerated sore-throat, and diluted to a much greater degree in erosive ulcerations of the gums.

Precautions in using the acid preparations—

The acid preparations, as they exert considerable action on the teeth, should, when their use is required for any length of time, be taken in the back of the mouth through a quill, or tube, and the mouth rinsed immediately after.

They should also, when administered, be so diluted as never to taste stronger than lemonade, for when of greater strength, pain and uneasiness are produced in the stomach, and their use is discontinued prematurely.

Chloride of Lime.

Preparation.

Its properties first discovered in 1798.

The article has lately acquired additional importance from the labors of Mr. Labarraque, who has demonstrated its usefulness as a disinfecting agent.

Used as an agent for this purpose, on a great variety of occasions.

The manner in which it acts in decomposing offensive effluvia.

In *Therapeutics* the Chloride of Lime has been employed in solution as a wash for *sordid* and *offensive ulcers*—in *wounds* complicated with *hospital gangrene*—to *large* and *superficial burns* when the inflammation has subsided.

It has been applied to scurvy, scald head, itch, and other affections of the skin—in chilblains—as a wash in ulcers of the uterus, cancers, &c.

Thus employed, it not only corrects the offensive odor from diseased surfaces, but it proves a wholesome and useful stimulus.

As an injection in cases of retained placenta, which had become putrid, in the proportion of ʒi. of the Chloride of Lime to a pint of water.

A very useful dressing for burns in the state of ulceration, with a fetid odor, and copious secretion, is the following :

R. Solution Chloride of Lime,

Olive or Linseed Oil, each equal parts.

To be applied freely to the diseased surface.

The Chloride of Lime being a cheap article, is preferred for common purposes, requiring the use of the article in any considerable quantity.

For surgical purposes the *Chloride of Soda* is preferred.

It is employed usefully in all those chronic affections of the skin, for which stimulating lotions are usually recommended, and for several other purposes for which the preceding article has been used—as scabies, herpes, lepra, psoriasis—used diluted, and undiluted.

It has been employed in *Erythematous Inflammation*, and in *ulcerations* of the *throat*, as a gargle.

Also for controlling the inflammation of the mouth produced by mercury, arresting the progress of mercurial salivation.

Having completed the consideration of Tonics, properly so called, we may in this place take notice of some other measures commonly, and very usefully resorted to, to renovate an enfeebled system, either when its powers are declining, or when they have been depressed by disease.

These measures will comprehend—

Change of climate.

Exercise.

A nutritious diet—remarks upon each.

DIVISION 15.

ASTRINGENTS.

By the term Astringent, is meant substances which obviate or remove increased evacuations, by their power of constringing or condensing the simple solids of which the vessels are formed. By the operation of this corrugating power, either directly exerted on a part, or extended by sympathetic action, the morbid affections arising from a state of relaxation are supposed to be removed.

Mechanical as is this explanation, and applicable as it is, in part, in

accounting for some of the phenomena which result from their action, it must be received with some limitation. For, though we admit such a corrugating power exercised by some substances in dead animal matter, we cannot allow them the same condensing powers while that matter is under the control of the vital principles. For this reason many have denied the existence of such remedies, and have considered those articles which have received the appellation of astringents, merely as stimulants, moderate and permanent in their action; in other words, as tonics inferior in their effects to the preceding. Although such an operation is exercised by these medicines, as we know from the influence of some of them in removing intermittent fevers, yet they also restrain excessive discharges, and constringing as they do the tongue, the same action may be extended along the alimentary canal, and diminish its undue secretions. But how this same action should be extended to other and distant parts, and that very often in a short space of time, is what is difficult to explain, and in this instance, as in others, we must acknowledge our inability to determine the essential character of the impressions produced by remedies upon the living system.

From the great difficulty of accounting for the extension of the astringent operation to distant parts of the body, some physicians have doubted whether the internal employment of such medicines can be of any service in stopping hæmorrhages, except those of the primæ viæ. The well known operation which many of the articles of this class possess, of arresting hæmorrhages, very soon after they have been taken into the stomach, and before they can be supposed to have entered the circulation, would induce us to abide by the old and common opinion of their use. Since it is not very difficult to suppose that their action may be communicated, by means of the nervous system, from the stomach to the remotest parts of the body.* Many instances of internal bleedings that have ceased on the exhibition of astringents, would incline us to look upon this explanation of their action as just.

But though the nature of their action must still be obscure, the character of the diseases to which astringents are applied is well understood. They are employed to diminish excessive discharges from the body, either of blood, serum or mucous, and for these several purposes are often very useful. Upon this subject we shall speak more fully when considering the individual articles. The astringent principle is diffused very extensively throughout the vegetable kingdom, and is connected with the presence of tannin and gallic acid. Of the vegetable astringents, the most important are the different species of *Querci* or Oaks.

Family *Corylaceæ*—*Quercus Robur*—*English Oak*.

There are many American species of Oak which are also possessed of a considerable degree of astringency. Of these the *Red Oak* is most esteemed for this property.

The bark of the branches is probably more astringent than that of the trunk, on account of the mass of dead cortical layers which constitutes a part of the thickness of the latter.

* They may also be absorbed, and thus modify the properties of the blood.

Sensible properties—

Taste, strong astringency, accompanied with a sense of bitterness.

The astringent operation of the oak was known to the ancients, and recommended in different diseases.

Diseases in which recommended—

In *Dysentery*, *Uterine* and *Pulmonary* discharges.

In *Intermittent Fevers*, but it is a very unpleasant medicine, and few patients can take it without disgust.

In *Chronic Diarrhœa*, administered according to the following formula :

℞. Infusion of Oak Bark,	3 iss.
Powdered Galls,	grs. x.
Tinct. Catechu,	3 ss.
Tinct. Cardamom Comp.,	3 ss.
Syrup of Orange Peel,	3 ss.

Mix for a draught—to be repeated as often as it is necessary.

The infusion of bark is prepared as follows :

℞. Bruised bark,	3 ss.
Boiling water,	3 viii.

Macerate for an hour and strain.

Externally—A decoction of the oak bark is very useful as an injection in *Leucorrhœa*, combined with alum—as a gargle in slight tumefactions of the mucous membrane of the fauces—in *prolapsus uvulæ*—as a wash in *prolapsus ani*.

Gallæ or Galls.

In more general use is the above article, an excrescence from the oak. They are produced by a small insect, which deposits an egg in the substance of the leaf or branch, by making a perforation on the under surface. The ball presently begins to grow, and the egg in the centre changes to a worm, which finally cuts its passage out, leaving a round hole.

There are several species of Galls to be met with in the shops—the best are brought from Aleppo.

They are also found on the oaks in the United States, and are not without some activity.

Medicinally considered, they are applicable to the same diseases as the bark of the oak, and by possessing a greater degree of astringency, seem to have advantages over the bark, and to be better suited for external use. Reduced to a fine powder, and made into an ointment, it forms a valuable application to hæmorrhoidal tumors.

℞. Powdered Galls,	3 i.
Powdered Opium,	℥ i.
Goulard's Ointment,	ʒ i.

Mix for an ointment—to be spread thick on a piece of lint, and kept applied to the painful and protruded piles by a T. bandage.

An infusion, or decoction of Galls, is also used as an injection in piles, gonorrhœa, or more properly gleet, in *leucorrhœa*, &c.

Tannic and Gallic Acids.

They are useful and more convenient remedies than the preceding, in all the diseases in which the oak bark and gall-nuts have been recommended.

They are employed in the intestinal derangements of children, viz : Diarrhœa, Cholera Infantum, &c. Given in small doses, alone, or combined with Dover's powder, as follows :

R. Tannin or Gallic Acid, grs. vi.
 Sugar, grs. xii.
 Pulv. Doveri, grs. iv.

Mix and divide into six powders—one to be taken every two or three hours—the proportions increased according to the age of the infant.

In other increased discharges from the mucous membranes—as in Leucorrhœa and Gonorrhœa. Given in pills of two grains each, several times a day.

In *Hæmorrhages* from the *Lungs* and *Uterus*, used internally and in the form of enema, injected slowly into the rectum in the latter complaint.

In *Sore Nipples*, employed in the form of solution, in the proportion of five grains to the ounce of water, and applied by means of lint, covered with oiled silk.

In *Toothache*, used in the form of solution in Sulphuric Æther, with Gum Mastich, as follows :

R. Tannin, ℥i
 Gum Mastich, grs. v.
 Sulphuric Æther, ʒii. m.

A little cotton wool imbued with the solution to be put into the cavity.

Recommended in the treatment of Albuminuria, and in Diabetes.

Dose of Tannin, one to two grs.

Family *Fabaceæ*—*Kino*.—A vegetable extract, prepared by inspissating the decoctions of the leaves and twigs of certain trees, more particularly of the *Nauclea Gambir*.

Sensible properties—

Odor, little or none.

Taste, a strong astringency, with a slight degree of subsequent sweetness.

Color, a deep red, almost black.

Medical applications—

Recommended in the treatment of Intermittent Fevers, but it is a remedy in which little confidence is placed at present.

In various preternatural discharges, a remedy better adapted.

In profuse discharges of the *Catamenia*, it has sometimes afforded great relief.

In *Dysentery* and *Diarrhœa*, it is found advantageous.

Before having recourse to it, the bowels should be well cleansed, and their acrid and irritating contents removed.

This being done by an emetico cathartic, or cathartic, a combination of astringents and diaphoretics will be found very useful, prepared as follows :

℞. Tincture of Kino,	3 ss.
Solution of Gum Arabic,	3 iv.
Antimonial Wine,	3 ii.
Tincture of Opium,	3 i. m.

Dose, 3 ss. every two or three hours.

Thus employed it is a pleasant mixture, and a useful one.

Tincture of Kino is a common addition to the cutaneous mixture.

In *Chronic Dysentery*, the same practice is to be pursued.

In *Incontinence of Urine* occurring in boys and young children.

Employed as an injection in Leucorrhœa, Gleet, &c.

Mr. Bell recommends very highly the following formula :

℞. Gum Kino,	3 i.
Alum,	3 i.
Mucilage of Gum Arabic,	3 i.
Water,	℥ i. m.

Let them be well united together, and filter for use.

The dose of the Tincture is 3 i.

The dose of the Powder, grs. v. to x.

In the treatment of *Gonorrhœa*, Kino employed internally, after gentle depletion, will be found very useful in checking the discharge—and among the most agreeable remedies prescribed for the disease. It is employed as follows :

℞. Tinct. Kino,	3 ss.
Mucilage Gum Arabic,	3 vi.
Sweet Spirits of Nitre,	3 iii.
Laudanum,	3 i.

Dose, 3 ss. every four or six hours.

Family *Fabaceæ*—*Hæmatoxylon Campechianum*—*Logwood*.

This tree is a native of South America.

The wood is of a solid texture, and of a dark grey color, and is much used by dyers.

Sensible properties—

Odor, no remarkable smell.

Taste, sweetish, subastringent.

It gives a purplish, red tincture, both to watery and spirituous infusions, and tinges the stools, and sometimes the urine, the same color. It does not color the bones of animals as madder.

Medical uses—

Used as an astringent in several disordered states of the Intestinal canal, particularly Diarrhœa, and with much advantage in chronic cases, which had resisted the more ordinary treatment.

It is given in the form of a strong infusion, alone, or combined with mucilage of Gum Arabic.

In *Cholera Infantum*, when the passages are thin, frequent, and watery, the strength of the child much reduced, and the Intestinal canal and its vessels relaxed and debilitated.

It is a favorite article with some practitioners, and they have succeeded after others have failed.

It is not unpleasant to the taste, and when sweetened with a little sugar, children will generally take it pretty freely.

Family *Fabaceæ*—*Acacia Catechu*—*Catechu*—*Terra Japonica*.

The *Catechu* tree grows in several parts of India.

The Extract is prepared from the wood of this tree.

It is an article nearly allied to Kino in its properties, insomuch that it may be substituted for it on all occasions.

It is used in affections of the *Mouth* and *Throat*, especially where there is debility or relaxation of the parts, as in relaxed *Uvula*, and in loss of voice. Used in the form of *Lozenges*, mixed with Gum Arabic and sugar.

In the same form, useful to persons who have occasion to speak long in public, as it diminishes or prevents the hoarseness, consequent to too great exercise of the vocal organs.

Externally, it is a useful application to ulcers of a phagedenic character, and to others requiring a gentle stimulant, prepared as follows :

℞. <i>Catechu</i> ,	℥ iv.
Sulphate Copper,	℥ iv.
Sulphat Alumine,	℥ i.
White Resin,	℥ iv.

These are reduced to a fine powder, and mixed with the hand, adding—

Olive Oil, ℥ x.—or sufficient to bring the mass to a proper consistence for an ointment.

Family *Polygalaceæ*—*Krameria Triandria*—*Rhatany*.

It is a native of many parts of Peru.

Description of the plant—

The root is the part employed—it consists of woody, cylindrical pieces, of the thickness of a goose-quill to twice that size.

It is a useful Astringent and Tonic, and has been found beneficial in checking profuse discharges. It tinges the fecal discharges of a red color, but does not affect the color of the urine.

Externally—The extract is employed in the form of tooth powder, and the tincture is used as an astringent mouth wash.

Forms of exhibition—

℞. Infusion,	
Extract—dose	grs. x. to ℥ i.
Tincture,	℥ i. to ℥ ss.
Syrup,	℥ i. to ℥ ss.

The compound Tincture, which is much employed as a stomachic in *Cardialgia*, nervous irritability, &c. It is prepared as follows :

℞. Rad. <i>Krameria</i> , bruised,	℥ iii.
Orange peel,	℥ ii.
Serpentaria,	℥ ss.
Saffron,	℥ i.
Alcohol,	℥ ii.

Dose, the same as the simple Tincture.

INDIGENOUS ASTRINGENTS.

FAMILY *Geraniaceæ*—*Geranium Maculatum*—*Spotted Geranium*—*Cranesbill*.

This plant grows very generally throughout the United States, being found in low grounds, &c.

Description of the plant—

The root is the part employed—It is internally of a green color, and when dried is brittle, and easily reduced to powder—It is an active astringent.

Medical uses—

Employed in the advanced stages of *Dysentery*, *Diarrhœa*, and *Cholera Infantum*.

It is given in the form of decoction, united with milk, and it is spoken of favorably by the practitioners of the country.

Externally, it is employed as an injection in *Gonorrhœas*, in the formation of gargles, and as a wash for chronic and obstinate ulcerations of the mouth.

Forms of administration—

In powder, dose $\mathfrak{D}i$.

In tincture, dose $\mathfrak{I}ii$. to $\mathfrak{I}ss$.

In decoction, boiled in milk, $\mathfrak{I}ss$. to $\mathfrak{I}i$.

Family *Rosaceæ*—*Rubus Villosus*, and *Procumbens*—*Blackberry*—*High Blackberry* and *Low Blackberry*.

These plants are too well known to require description.

The root is a pure and strong astringent.

It is employed in the same diseases in which the preceding articles have been recommended.

Exhibits valuable properties in *Cholera Infantum*, being employed to check the frequent and profuse discharges from the bowels, which often occur at the conclusion of the disease. It is given in the form of decoction, sweetened with sugar, or united with milk.

In the *Diarrhœas* of old people, it is equally useful, employed in the secondary stages, after the removal of offending matters from the bowels.

Forms of exhibition—

In decoction, prepared as follows :

\mathfrak{R} . Bruised root of *Rubus*, $\mathfrak{I}ss$ to $\mathfrak{I}i$.

Water, 1 pint.

Boil until it becomes of the color of claret.

Dose, $\mathfrak{I}ss$. to $\mathfrak{I}i$, several times a day.

The list of our Indigenous Astringents might be extended, and a variety of others added, whose virtues have been in high repute. We subjoin a list of a few, as follows :

Vaccinium Arboreum—Whortle or Huckleberry.

Coreopsis Americana—Red Root.

Diospyros Virginiana—Persimmon.

Galium.

Prinos Verticellatus—Winter-berry.

Chimaphila Umbellata—Winter-green.

Gaultheria Procumbens—Partridge-berry.

Completing the consideration of the Vegetable Astringents, we proceed to those of the Mineral kingdom.

Of Alum or Sulphate of Alumina and Potash.

Preparation.

Also found native, efflorescing generally in the interstices of Alum Slate, or it is prepared from Alum Ores.

Of the Medical uses—

It has been recommended in the treatment of *Intermittent Fevers*, combined with nutmeg, and this combination Dr. Lind declared proved more successful in his practice than the Peruvian bark.

In the complaints of the bowels, it is better adapted.

In *protracted Dysentery*—in the advanced stages of *Cholera Infantum*, combined with Gum Arabic and prepared Chalk, or sugar.

In Colica Pictonum and obstinate Colics, it has been said to be an effectual remedy, administered in the following manner :

℞. Sulphate Alumina and Potash, grs. xv.

Powdered Opium, grs. i. to ii.

To be made into a powder—repeated every four, five, or six hours, it has been found gently aperient, and when the symptoms were not severe, the second or third dose seldom failed to mitigate the pain, and sometimes entirely removed it.

Principally in Hæmorrhages that it is employed, whether from the lungs or uterus.

In the former it is not so well adopted, but in Menorrhagia and other Uterine Hæmorrhages, which depend upon a laxity of the vessels of the Uterus, it may, and has often been of service.

It is given in doses of v. grs., which may be increased, or in the form of Alum whey, prepared as follows :

℞. Boiling Milk, 1 pint.

Powdered Alum, 3 ii.

To the boiling milk add the alum, and continue to boil until the coagulum separates, and strain.

The dose is a tea-cupful, taken as required.

Employed in other discharges, as in Leucorrhœa and Gleet, combined with a decoction of red oak bark.

Externally—much employed in the formation of gargles, for cleansing ulcers of the mouth and throat, in relaxation of the uvula—as an injection in Gleet, being added to a decoction of Galls.

In Ophthalmia, in the form of *Alum curd*, applied over the eye-lid, on a fold of linen. This a popular remedy, and where much inflammation exists, from its coolness and softness, will be found very serviceable. It should be renewed frequently, as the warmth dissipates its moisture.

Preparation of the Alum curd—

Alum deprived of its water of crystallization, common called *burnt*

Alum, is useful as an escharotic, and is employed in removing luxuriant granulations.

The utility of Alum in powder, has been recommended in acute *Cynanche Tonsillaris*.

The powder applied by means of the finger to the fauces, and inflamed parts, exercises a wonderful effect. The symptoms subside in a short time—the fever diminishes, and the tumefaction abates.

Of the forms of exhibiting this article—

In powder, combined with Opium.

In Alum whey, prepared as directed.

Of Lead and its preparations.

This metal is found native, combined with a number of minerals.

In its metallic state it exerts but little action on the system, but becomes so by union with acids, forming saline compounds.

The principal preparation is the

Super Acetate of Lead—*Saccharum Saturni*, or Sugar of Lead—Preparation.

Objections have been made to the use of this article, and by many considered unsafe. These objections have been removed, and it is determined that under ordinary circumstances it is perfectly safe and even innocent.

Diseases in which it is employed—

It has been employed in Intermittent Fevers, in Dropsies, and in Spasmodic diseases, but little employed for this purpose at the present time.

In *Hæmorrhages* chiefly useful, and when its powers are considered abstractly, are truly wonderful.

In *Hæmoptysis* not employed until the excitement of the system has been relieved. When this has been reduced, it is given in small doses, united with opium or laudanum.

In *Hæmorrhages* from the uterus it is best adapted.

It should not be employed indiscriminately, but in profuse discharges, means should be used to excite contractions of the uterus, as this only can restrain the bleeding vessels.

Adapted only to moderate discharges of blood, which occur in the unimpregnated state, and here in combination with opium it will be found useful.

Employed in *Hæmorrhages* from other organs.

From the *bladder*, *bowels*, &c., also combined with opium.

In *irritable* affections of the stomach.

In that irritable state of this organ, connected with Yellow Fever and other febrile affections, combined with the powdered liquorice root.

In the complaints of the Alimentary canal.

In *Dysentery* and *Diarrhœa*—In the former disease has been found beneficial in checking the frequent discharges, the tenesmus, the mucous and bloody dejections which are so tormenting and alarming. It is combined with small portions of Opium and Ipecacuanha.

The formula is as follows :

℞. Sac. Saturni, grs. xii.
 Powdered Ipecac., grs. vi.
 Powdered Opium, grs. iv.
 Simple Syrup, as much as is sufficient.

Make into a mass and divide into viii. pills—one to be taken every two hours until relief is afforded.

Not employed until the excitement of the system has been reduced, when it may be resorted to with the happiest effects.

Besides these diseases, it has been employed in Hydrophobia.

The symptoms and progress of the disease described.

The Acetate of Lead administered in such doses as to produce paralysis, when the Hydrophobic symptoms declined.

We have had an opportunity of testing the effects of the Lead in the case of a very interesting child, in whom Hydrophobia supervened five months after being bitten by a dog. The remedy was used at an early period of the disease, and was given with as much freedom as the case seemed to require, but it terminated unfavorably.

A great inconvenience was experienced in the use of the Lead, viz : coagulating the albumen in the saliva, so that it was with difficulty swallowed, and the child was much annoyed by the presence of a matter like curd, on the tongue and mouth, which he in vain endeavored to remove, by scraping the tongue against the teeth. Convulsions succeeded at the close of the disease, and the patient died in a state of insensibility.

The preparations of Lead have been recommended in Tetanus, given in large doses, and carried to the extent of producing paralysis. Upon the supervention of this symptom the disease has subsided, and the patient recovered.

Of the poisonous operation of Lead—

A variety of ways in which poisoning from Lead takes place. They are with the Acetate of Lead—the Red Oxyde of Lead—the Carbonate of Lead—Food cooked in Leaden utensils—Syrups and Spirits clarified with Acetate of Lead—Saturnine Emanations.

The poisonous effects are produced chiefly from the Carbonate, and when poisonous symptoms arise from the Acetate, it is in consequence of its being converted into the Carbonate.

Poisoning from Lead takes place also from the volatilization of the metal.

The house painter is affected in this manner. In painting inside work, the Lead is combined with a large proportion of Spirits of Turpentine—by the warmth of the room the Turpentine is volatilized, and with it the Lead. Some of the worst cases of colic are produced in this manner.

Symptoms produced by the gradual introduction of Lead into the system. Colic is among the earliest, and hence the complaint has been styled Colica Pictorum, or Painter's Colic.

The most useful remedies against the Salts of Lead, are the Sulphates of Soda and Magnesia. They decompose them, and the Acetate in particular, and form an insoluble Sulphate of Lead, which is innoxious.

The treatment of Colica Pictonum, will be out of my province to consider.

We have had under our care two cases of Colica Pictonum, produced from the free use of Soda Water, as manufactured at the fount, and dispensed.

The gasometers are lined with lead, and the tubes, or their joinings, made of lead. The action of the ingredients in the generation of the carbonic acid gas is to decompose a portion of the lead, and though only in minute quantity, yet the too free use of the water, particularly that first drawn off, is a cause of this disease.

One of the cases, which had continued at intervals for some time, was relieved by the use of Mosely's vitriolic solution, employed in small doses for some time.

External application in many local diseases.

In the formation of Collyria to *Inflamed Eyes*.

It is used in the proportion of a grain of the salt to an ounce of distilled water, to which a few drops of Laudanum may be added.

The same combination has been used as an injection in *Gonorrhœa*, though it should be employed cautiously, and towards the close of the disease, when the inflammatory symptoms have abated.

As an application to *Phlegmonous Tumors*.

Dissolve 3i. or 3ii. of the Acetate of Lead in a pint of water, and the usual directions for employing it are to fold a piece of linen rag several times, wet it with the solution, and apply it to the inflamed part, or the crumb of bread broke up fine, to be thoroughly wetted with the solution, and employed as a cold poultice.

Goulard's Extract—Preparation.

It received its name of Goulard, from a French surgeon, who introduced it many years ago into practice, under the name of Extract of Saturnine, and was recommended by him in a variety of diseases, internally exhibited and externally applied,

In *Hæmoptysis* and other Hæmorrhages recommended, with Tincture Digitalis in equal proportions, and given in doses of x. to xx. m., two or three times a day, in a little water.

Externally, it was employed in the treatment of bruises, burns, inflammations, sprains, &c., but it possesses no advantages over the salt I have mentioned, and as it is more variable in its strength, it is on that account an inferior preparation.

ALIMENTS.

IN entering upon this subject, I am satisfied that though it may be less interesting than other parts of the course, it is, nevertheless, exceedingly useful, and in every point of view richly deserving your attention.

A knowledge of Dietetics is particularly required of the physician, as it is a subject upon which he is so frequently consulted, and an acquaintance with which is so necessary, in order to guide and direct his patients through the stages of convalescence to perfect recovery. For next to the administration of medicine, by which the system is prepared for having its healthy operations restored, is the kind and quality of aliment which ought to be employed, in order that a healthy chyle be produced, and the digestive organs be unembarrassed in their operations. If, therefore, the details become a little tedious, or minute, we trust you will consider them unavoidable, as it shall be our object to be as practical as the nature of the subject will admit.

The great variety of articles upon which man is capable of living, renders it difficult to conclude what species of aliment is destined for him. If we look into the habits of different nations in this particular, we will be convinced of this fact, and find some difficulty in arriving at a conclusion. The native of New South Wales and Greenland, receive their nourishment almost exclusively from fish—the Mahometan and Hindoo are almost alone supported by vegetables. The savages of our continent, and some of the wandering tribes of Asia, live wholly, or almost entirely upon flesh, and the European, and other civilized nations, live, I may say, upon the bounty of every kingdom in nature. It is this capacity in man, to digest every species of food, which, while it fits him to be an inhabitant of every section of the globe, renders it difficult to decide upon the aliment best adapted to his nature. In every situation there are not wanting instances of health, longevity, and a capacity to endure fatigue, and the differences to be observed in different latitudes, arise more from climate, with moral and intellectual causes, than from any differences in diet.

With a knowledge of these circumstances, it has, however, long been a question, whether man was destined to live on flesh, or vegetables—that is, whether he is carnivorous or herbivorous. The principles which the celebrated Cuvier has applied to the classification of the Animal Kingdom, have not been overlooked in this discussion, and inferences have been drawn from the structure of the teeth, and the length of the alimentary canal.

To understand this subject, it should be observed that carnivorous

animals have very long and pointed cuspidati, or canine teeth, which are employed as instruments of offence and defence, and which serve the animal for seizing and lacerating its prey. Their grinders also, have their bases elevated into pointed prominences, and those of the lower shut into those of the upper jaw, an arrangement more intended for cutting, than grinding their food. The teeth also, have an entire covering of enamel. The intestinal canal is also very short, and for this reason, that the food taken being easily assimilated, and converted into a nutritive substance, a lengthened extent of surface was unnecessary. The stomach, too, in this class of animals is simple in its structure, consisting of little more than a membranous sac.

In herbivorous animals, the canine teeth are not found, or are very short, and the grinders have broad surfaces—the enamel does not cover the teeth uniformly, but is intermixed with the body of the tooth. This substance being much harder, and more durable than bone, which enters into the composition of teeth, unequal edges are formed by the bony matter being worn down. From this circumstance the food is comminuted to a great degree. To aid this operation, there is a peculiarity in the structure of the lower jaw, which allows of considerable lateral motion, and in this respect differs much from the preceding order of animals. The stomach, too, is much more complicated, consisting of four cavities, and there is a much greater length of the alimentary canal—a structure of parts rendered necessary for the greater elaboration required, to anamalize vegetable food.

We observe, then, a very striking difference between these two orders of animals—that of carnivorous, having an arrangement, calculated to lacerate and devour their food, and from the greater facility with which it is converted into nutritive matter, a less complicated arrangement of the stomach, and a shorter intestinal canal. The structure of the graminivorous animals seems designed for cropping and dividing their food very minutely, the arrangement of the stomach for retaining it until it is thoroughly acted upon by the juices of that organ, and a more extended length of the intestinal canal, to render the process still more complete.

This cursory view being premised, we shall by reverting to the human species, observe several differences in structure, which, while they distinguish man from either of these orders, at the same time point out an alliance with both. In the structure of the teeth, man has, indeed, canine, but they do not exceed the level of the others, and are unfitted for the offices they perform in carnivorous animals, while he has incisors and molares, which are allied to the phytivorous animals, but still differing from them, in being covered by the enamel, and not being so smooth and flat. The freedom of lateral motion of the lower jaw of the human subject resembles that of herbivorous animals, while in the simplicity of structure of the stomach, he is allied to the carnivorous. The intestinal canal holds an intermediate station, not as long as in the one, and longer in the other. The *Intestinum cæcum* is also short—man would, therefore, hold a middle station between these animals, being equally fitted for both kinds of food—he is, therefore, neither herbivorous or carnivorous, but omnivorous.

It is worthy of being remarked, that however various the aliment taken, the chyle or nutriment derived therefrom is always, or nearly the same, affording by analysis a product similar in composition and quality. That such is the case, is proved by the fact, that whether we live upon vegetable or animal substances exclusively, the internal composition of our organs does not alter. From this circumstance is derived the saying of the father of physic—That there is but one food, but there exists several forms of food. This most extraordinary phenomenon can only be referred to the influence of the vital principle, which in this instance, as in others, affords matter for wonder and admiration.

With these few preliminary remarks, we proceed to the particular consideration of our subject.

By Aliments, is meant articles of a mild, bland, and agreeable nature, capable of being assimilated, and converted into nutriment, to support the growth of our systems, and repair their daily waste. Hence the aphorism of Linnæus—*insipida et inodora, nutriunt—sapidiora, non nutriunt*. Qualities the contrary of these have commonly been considered as medicines. This, however, is not strictly correct, as many articles which are acrid, and possessed of sensible properties, may be made nutritious by undergoing previous preparation, as the Cassada* and Arum, or provided the human system was capable of subduing their nature—and this is proved by the fact, that some animals live upon what is poisonous to others. The human subject is, however, more delicate in its choice of food than other animals; and, as a general rule, we may be allowed the assertion, that acrid, bitter, and disagreeable articles, are not used as aliment.

We will commence the consideration of Aliments with the Vegetable Kingdom, as it is the medium through which many substances, differing from animals, are fitted and prepared for their support—serving, therefore, as has justly been observed, as laboratories, in which nature prepares their food. Moreover, it is upon vegetables that the whole animal creation is dependent, and from which they derive nourishment, thus verifying the words of Scripture, that “all flesh is grass.”

We may inquire what part of the mild, and bland vegetables, constitutes the proper Aliment?

It is not necessary to enter into all the constituent parts of vegetables,†

* *Jatropha Manihot*—Cassava, or Tapioca plant, or Brazilian Arrow Root.

Dried into cakes on plates of iron, is called Cassava, or Cassada Bread.

When the root has been deprived of its poisonous principle it becomes highly nutritious.

† The constituent parts are as follows:

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|-------------------------------|--|
| 1. Saccharine. | 8. Pectinaceous, from pecten, vegetable jelly. |
| 2. Oily. | 9. Acidulous. |
| 3. Gelatinous. | 10. Aleoholic. |
| 4. Amylaceous or farinaceous. | 11. Proteinaceous, from protein.† |
| 5. Mueilaginous. | 12. Saline. |
| 6. Aqueous. | 13. Water. |
| 7. Ligneous. | |

† The organic constituent of fibrine, albumen, caseine.

but I will observe, that the nutritive parts depend upon the presence of Gluten, Sugar, Farina, Oils, Mucilage, &c., and that the differences between vegetables depend upon the different degrees of their combination.

Gluten will be found in greatest abundance in the class *Cerealia*, and seems to approach nearer to the nature of animal substances than any of the component parts of vegetables. It has from this circumstance been called the *vegeto-animal principle*. It is of a sticky, ropy, elastic nature, and it is supposed to be owing to the viscous qualities of this substance, that wheat flour forms a much better paste, than any other. It is insoluble in water, and in that respect differs essentially from gum, which is extremely soluble. It is obtained by enclosing a paste made with flour in a bag, and allowing a stream of water to fall upon it, when the amylaceous, or farinaceous matter is washed off, and the substance remaining is of a greyish color. This is the gluten, and it bears a great resemblance to the fibrin of the blood.

The next article, or *sugar*, is not found in its simple state in plants, but is always mixed with sap, gum, or other products. It is to be met with in every vegetable, but it abounds most in roots, fruits, and particularly the sugar-cane. That it exists in roots to a considerable extent, we know from the fact, that during the troubles in the West Indies, when Europe was imperfectly supplied with sugar, this article was procured to a considerable extent from beets, carrots, parsnips, &c.

That sugar is nutritious, is presumed from what happens to the negroes on the sugar plantations in the West Indies, who are observed to increase in size, and become fat during the expression of the canes, when they consume much of the cane juice. It is also related in proof of the nutritive properties of sugar, that figs which contain a large proportion of this substance, were anciently the chief food of the athletic or wrestlers. To obtain the nutritious and invigorating quality of sugar, it is necessary to mix with it a small quantity of farina or bread. Baron Humboldt informs us, that the Indians when they set out on long journeys, during which they expect to experience a want of the proper supply of food by the chase, always provide themselves with a portion of Indian meal, mixed with honey. An additional proof of sugar's being nutritious, is that a great proportion of it is contained in all farinaceous matter, as is proved by its being evolved in most of the farinaceous seeds, by malting, and by their germination.

The next of the vegetable aliments is the *Fecula* or *Farina*, this being the general name given to the farinaceous substances contained in all seeds, and in some roots, as the potatoe, parsnip, &c. It is intended by nature for the first aliment of the young vegetable, but it is to be found more particularly in wheat and bread stuffs, than any other. This substance is intimately connected with the saccharine matter of plants, and it is probably from this circumstance that the farinaceous seeds are, of all other vegetable matter, the most nourishing to men, as well as to domestic animals.

Besides these principles, there are the *vegetable oils*, which afford considerable nutriment. They exist in seeds, combined with farina, and these two substances united with a little mucilage, from the white

substance contained in the seeds or kernels of plants, and is destined for the nourishment of the young plant, to which the seed gives birth. That oil is a fundamental part of human aliment, is proved from the quantity which is taken as a part of diet by the people of all nations, and often in large quantities.

The last article that I shall mention is *Mucilage*. This is a substance secreted from the sap of trees, and which is found also in seeds and vegetables. The purest form in which it is obtained, is in that of Gum Arabic, and that it is alimentary, we know, from travelling companies and crews of ships, having been supported by it for a length of time, when other supplies had failed them.

Vegetable substances will, therefore, differ from each other in the different proportions of the above mentioned principle. There is also another essential distinction, which is the greater or less difficulty with which the digestive organs will separate the nutritious particles.

This will depend upon the texture of the articles, resisting in a greater or less degree the solvent powers of the stomach. It will also depend upon the state of strength or weakness of the particular habit of body, or peculiarity of constitution.

Our duty, then, will be to point out the several articles of diet in use, with their comparative digestible proportions, and to state the changes which take place in the process of digestion, which render a substance innocent or hurtful—promising, however, that exceptions may frequently be made, as in many cases the test of the wholesomeness or unwholesomeness of a plant, is its agreeing with the constitution. The remarks, therefore, which I shall offer, upon the digestibility of animal or vegetable substances, must not be considered absolute, but to correspond with the general experience upon this subject. For such is the influence of habit, of diversified tastes, &c., upon digestion, that a substance which may be pleasant to one, would be poison to another.

We shall consider the particular articles, according to the principles which predominate.

1. Of alimentary substances, in which mucilage chiefly prevails.

Under this head are included the leaves and stalks of plants, and some of the roots. The articles furnished from the leaves and stalks of plants are not very numerous. They are all of them *mild*, and almost *insipid substances*, with hardly any sweet or mucilaginous taste to discover a nourishing quality.

Spinach.—This vegetable, which is esteemed at the table, is of a watery, insipid taste, with little of a saccharine or mucilaginous quality.

It is rendered more agreeable by the addition of butter, but it is not often duly digested, and consequently affords but little nutriment.

This circumstance often recommends it in strong habits, as it often occasions an alvine operation.

In weak and relaxed habits it should be forbidden, as it debilitates the alimentary canal, excites looseness, and not unfrequently occasions the heart-burn, or acidity in the stomach.

The green color of foliaceous parts depends upon the presence of green globules, contained in the cells of the leaf. These globules consist of a substance called *Chlorophylle*, which in its properties is inter-

mediate between resin and fat. It does not appear to possess any alimentary properties. This chlorophylle not being easily digested, and being, therefore, excrementitious, contributes to the action of the bowels, particularly in weak and irritable conditions of them. In dyspeptic affections, it is apt to disagree by producing acidity and flatulence, and their consequence.

2. Of the *Brassica*, or *Cabbage*, there are several varieties—the principal are the Colwort, Cauliflower, Broccoli, Greens, &c.

Properties.—All of them are sensibly *sweet*, and, therefore, more *nutritious* than most of the herbaceous plants. The distinction which is made in the varieties of the cabbage, depend mostly on *their texture*. They are most of them of a *firm texture*, and in common with *vegetable aliment*, contain a *great deal of air*, and on this account are noted as producing *flatulency*, and disposing much to *acidity*. This always takes place in *weak habits*, in a *dyspeptic condition of the bowels*, and in *peculiar constitutions*, in which this article *invariably disagrees*, producing *flatulency*, *griping*, and even *colic*. They are, therefore, almost invariably *proscribed* in a weak state of the bowels.

The Cauliflower, as it is the most *delicate*, is also the most easily *digested of all the various species of cabbage*, and is not liable to all of the above objections.

Cabbages have a strong tendency to *putrefaction*, especially when frost bitten—they become putrid much sooner than any other vegetable, and when in that state their smell is very offensive, and bears no small resemblance to animal substances in a state of putrescency. They contain *nitrogen* and *sulphur*.

A preparation of the cabbage, called sour krout, has been recommended as less objectionable than the pure article. It is a very common dish among the Germans, and when prepared with neatness is highly palatable.

It is prepared by putting cabbage cut into thin slices in barrels, in layers, alternating with layers of salt, with carraway seeds. In this manner the layers are closely pressed down, until the barrel is full, when a close cover is put over it and pressed with a heavy weight. After standing some time, the mass begins to ferment, and as soon as it subsides, the head is fitted to the barrel, which is then finally closed, and its contents preserved for use.

It has been recommended as a wholesome and anti-scorbutic dish, and is especially useful in long voyages. It is less liable to the objections made to the pure cabbage, as by fermentation much of the air contained in the vegetable has been extricated. It is *not fitted for persons troubled with acidity*, and it has a *slightly* relaxing effect upon the bowels.

Of the various species of *Lettuce*—These are all lactescent plants, and it is almost an universal rule, that all those which afford a milky juice, are more or less narcotic, and many of them poisonous. The present race of plants are more or less narcotic, and the inspissated milky juice is called Lactucarium, or Lettuce Opium. The Lettuce is generally eaten with other herbs in the form of a *sallad*, dressed with *oil* and *vinegar*. These condiments are very useful, as in this state it is

less likely to disagree with the stomach, or to run into fermentation, than when taken without. They are only used *when young*, and in this state are *emollient, cooling, and wholesome sallad herbs*. They should be avoided by those with *weak stomachs*, or dyspeptic.

Artichoke.—Of this acrid plant, the only alimentary part is the receptacle of the flower, and the portions of it which are pulled away from it in separating the squamæ of the calyx. It is perfectly mild, is of a tender texture and easily digested—it is also somewhat sweet and mucilaginous, and, therefore, tolerably nourishing.

Asparagus is an esculent plant, which is reared with great attention, and much esteemed on account of its delicate flavor. It is an intermediate substance between a *root* and a *plant*—in its adult state it is remarkably *acrid*, and is only *esculent* in its first stage of growth. When eaten in any quantity, they soon after imbue the urine with a peculiar odor, which did not appear in the asparagus before it was eaten. This has given occasion to an opinion of the power of asparagus, with respect to both the urine and urinary passages, acting as a gentle diuretic. It is a *vegetable pleasant to the taste, and easy of digestion*.

Of other vegetables, which are neither furnished from the leaves or stems of plants, but which may be considered here.

The Cucumber.—It is *watery, acescent and cooling*, hence they are esteemed in summer—but as they are not so soluble in the gastric juice, and remain a long time in the stomach, they should be used moderately, especially when the stomach is weak and performs its functions slowly, and avoided as poison by dyspeptics. They should be seasoned, otherwise there is danger of their producing acidity, flatulency, colics, diarrhœa—in a word, the symptoms and diseases which accompany bad digestion.

Next to the leaves and stems of plants, I shall speak of the *Roots*. They commonly contain more nutritious matter than the leaves, and contribute much to the comfort and support of mankind, as many of them afford a wholesome and agreeable food.

The first that I shall mention is the *Turnip*, which, for its extensive use in culinary purposes, and the wants of animals, claims the precedence. It affords a large quantity of *mild, pulpy matter*, which, as it is of a *tender consistence, is easily digested, and seldom occasions flatulence*. There are many varieties of the *Turnip*, but I shall only mention the white or common Turnip, and the Ruta Baga, or Swedish. The last is the most valuable root, as it is more sweet and mucilaginous, and, therefore, seemingly nutritious.

As an article of food for cattle, the Turnip is particularly valuable. Sheep, when fed with it, thrive uncommonly well, and their flesh acquires a delicate flavor. So valuable are they in this respect, that in countries where wool is an article of trade or consumption, the loss of a turnip crop is more regretted than a corn crop. As an article of food for horses and cows, it is also valuable.

Carrot—Is a root very frequently used, and contains a considerable quantity of *saccharine matter*, though so much involved with mucilage that it cannot be obtained in a granulated form, but is in the state of

thick syrup resembling treacle. It is, therefore, *very nutritious*, affording an article of diet *not so easy of digestion as the turnip*, and in some respects *flatulent*. It possesses a large portion of *fibrous matter*, which in some stomachs *prevents the digestion of the root*, and it passes through the bowels but little changed. To obviate this effect, it should be thoroughly boiled, and it should be eaten when young.

It is well adapted to animals, affording a wholesome and nutritious fodder.

Parsnip.—This root affords a considerable degree of nutritive matter, and contains also much saccharine substance, but, like the carrot, cannot be separated in a granular form. It is, therefore, *nutritive*, but not *very wholesome for weak stomachs*.

They are as valuable for feeding cattle as for culinary purposes. In the North of Ireland they are brewed with hops, and when fermented with yeast afford an agreeable beverage.

Beets.—This root contains a large proportion of saccharine matter. By the latest experiments of Mr. Achard, of Berlin, it has been proved that about fourteen pounds weight, produced one pound of sugar, exceedingly sweet, and without intermixture with any other taste. Independently of this consideration, the beet is a valuable root, both in an economical and culinary point of view. It is *possessed of mild, aperient properties*, but *though it is easily digested, its use is sometimes attended with flatulency*.

It is not proper for the dyspeptic.

Radishes are considered *aperient* and *anti-scorbutic*. When eat in moderate quantities, they are in a certain measure wholesome to persons of strong habits, but are in general apt to produce a *considerable degree of flatulency in those whose stomachs are enfeebled*. In disordered states of the stomach, *where digestion is weak, and in Dyspepsia*, no article is more *unwholesome*, and should be *strongly forbid*.

Of alimentary substances in which farina chiefly prevails.

Solanum Tuberosum—*Potatoe*—*Irish*.—It may be considered as a general rule, that every kind of aliment, for which we feel a natural and permanent appetite, is conformable to our nature. Of this kind is the potatoe, which in the most simple preparation, and without any addition, affords an *agreeable and wholesome food* to almost every person, and *particularly to children*. It is one of the *lightest alimentary substances*, occasioning neither *visciditv nor flatulency*, and can be hurtful only when immoderately used. Its excellent nourishment is sufficiently obvious in the healthiness of those people whose principal food is potatoes, as well as animals that are fattened upon their roots. It contains a considerable quantity of *farinaceous matter*, which has every property of the *Cerealia*, except that it affords no gluten. Its *nutritious* quality is ascertained by the experience of all Europe, as in almost every part of it, it makes a considerable portion of the food of the common people.

Arrow Root is derived from the *Marunta Arundinacea*, of the West Indies. The article so much employed, is prepared in the following manner :

The roots are well cleansed, and ground or beaten, and agitated with

water, until the liquid becomes turbid with the farinaceous portion. The coarser parts are then poured off, and the fine powder which subsides is dried, and constitutes the arrow root of commerce. It is the powder thus prepared, which is employed, and there are few articles which contain so much nutritive matter in so small a compass. It is seldom employed but for *invalids*, though it might be advantageously used for domestic purposes, as in the making of bread, pastry, cakes, &c. For the last purposes it is said by some to be superior to wheat flour, the articles prepared being *lighter, whiter, and easier of digestion*.

When employed for the sick, it is prepared in the following manner:—A table-spoonful will be sufficient for a pint of strong nourishing jelly, and the powder is made into a paste with cold water, upon this the hot water is poured, and stirred until it is dissolved. A little sugar is added to render it palatable. When it can be allowed, the addition of wine and nutmeg renders it very pleasant.

Thus prepared, it is a very useful article in convalescence from acute diseases, and in complaints where animal food must be abstained from. It also furnishes, when not seasoned, an excellent article of diet in bowel complaints, and particularly in the intestinal and other diseases of children. In the diseases of children a little milk is very useful combined with the arrow root, but it should not be employed for others with whom it disagrees.

The plants thrive very well in gardens in this city, and by some families it is raised in such abundance as to be much used in domestic economy.

Sago.—This is the medullary substance of one or more species of Cyceas, a genus of Palm trees growing in India and Japan. It is procured by splitting the trunks and stems, which contain a *farinaceous pith*, scraping out this portion, which is afterwards separated from the woody fibres by agitation in water. Sago is used as bread, and constitutes a great portion of the food of many tribes in the places where it grows. It is granulated for exportation by forcing it through a coarse sieve, and drying it with heat. It comes to us in hard, round, whitish grains, of a farinaceous character, wholly soluble in boiling water. Before it is used it should be well washed, and boiled for some time, in order to dissolve all the grains, stirring it diligently. It then forms a transparent jelly. A table-spoonful to a pint of water is sufficient for ordinary purposes. To render it more agreeable, small portions of lemon juice, sugar and wine should be added, if not contra-indicated. In this state it is an *excellent restorative article*, particularly for the convalescent, and to those whose *digestion is weakened and impaired*. In phthysical cases, a decoction of sago, in milk, will be most proper, for wine can only be allowed to patients who are free from febrile symptoms.

Tapioca is the *pure farinaceous* part of the root of the *Jatropha Manihot*, or Cassava plant of the West Indies. It is usually met with in the shops in the form of irregular small lumps. It has acquired this form in consequence of having been dried on hot plates. The heat used in its preparation breaks the starch globules, and renders them par-

tially soluble in cold water. In boiling water it becomes tremulous, gelatiniform, transparent and viscous.

In its *nutritious qualities*, *Tapioca* agrees with *Sago*, than which it is much purer, being free from coloring matter. It is principally employed as an agreeable light nourishment for invalids, as well as for children.

This brings us to the second class of vegetables, the *Graminæ* or seeds of plants. To these has been applied the term *Cerealia*, and under it is comprehended the seeds of the several *gramineous* or culmiferous plants that are employed as food. They differ from the leaves and stalks of plants in containing *less mucilage*, and from the roots in a *less degree of saccharine matter*, and abound chiefly in the article *Farina*. This, as I have observed, is one of the constituent parts of alimentary vegetables, and is what is chiefly nutritious, and makes the most considerable portion of the aliment employed by man. It is a nourishment quite prepared, and digested by the mother plant for the support of the embryo at the commencement of life, when it is too feeble to extract the proper nourishment from the earth and air. Man has discovered it by a kind of instinct, and it is an aliment peculiarly adapted to his nature, and one which has a preference over most others.

The variety of seeds classed under this head, differ in the *different proportions of farinaceous matter* which they contain, and the *looseness and ready development* of the other parts of the grain. It will be useful to speak of them severally, as I shall then mention the distinctions, and their relative rank in the scale of nutritive substances.

1. *Barley*.—This is one of the grains which has its saccharine matter evolved by germination, and is, therefore, more readily subjected to fermentation, hence the preference given to this grain, and the immense quantities used in brewing. Barley made into bread has a *sweetish taste*, but not *unpleasant*—it is, however, *rather viscid*, and *is less nutritive as well as less digestible than wheat bread*. It does not contain as much *Farina* as other seeds, and hence is seldom made into bread alone, but combined with other grains.

A decoction of barley, or barley water, is a drink employed in many diseases. In affections of the chest, and of the kidneys, decoctions of this article allay irritation, and remove the tickling sensation in the throat which excites to coughing. As a cooling and diluent beverage, it is useful in febrile diseases, and in inflammatory cases where great heat and thirst prevail.

Pearl Barley, or that which is deprived of its husk, is considered *preferable*, but we think differently, as it is apt to become mouldy and bad, and in its best state communicates to the water something more than its mucilage. It can always be extracted from common barley by warm water.

Rye very much resembles wheat, but has more sugar. It is capable of undergoing the process of malting, and thus affords a great deal of ardent spirits. The meal of rye is used for various purposes. It is useful in making bread, but it *readily runs into the acetous fermentation*, and *lies heavy on the stomach*. Rye bread is *gently laxative*, and in many habits keeps the bowels open without purging. In costive

habits of body it may properly be resorted to, and in many cases it has answered for this purpose very well. In persons troubled with *hemorrhoids*, and in children laboring under *prolapsus ani*, the importance of regularity in the alvine evacuations is well understood. When this object can be obtained by diet, its very great superiority over medicine does not require any comments. A diet of rye mush, taken morning and evening, with treacle or molasses, has very frequently been found serviceable.

Rice is preferable to all other grains, both from its abundant produce, and the large portion of nutriment it affords. It has long been employed as aliment by the greatest part of Asia, and is extensively used in our own country, and in Europe. It has *little sweetness*, and is *not readily ascendent, nor readily subjected to fermentation*. On this account it *agrees with most conditions of the system*, and in some of its *deranged states*, affords a *light and easily digested article* of nourishment. In dysenteries, diarrhœas, and similar disorders, it is often employed with advantage as a diet. It is a popular objection, that rice has a tendency to produce costiveness. This is only so far true as it is employed by persons of weak and debilitated habits of body, in whom it sometimes *produces flatulency*, which sufficiently accounts for this secondary effect. Doubtless, when used alone, like other vegetable food, it will not stimulate the bowels to quickened action, and on this account in India, it is usual to combine large quantities of heating spices with it, by which its passage through the bowels is promoted. From a custom so beneficial in its physical effects, we may conclude that the Indians, though directed by instinct, rather than scientific indication, are not altogether unacquainted with the rules of diet.

Oats.—From our knowledge of the section of country, whose inhabitants are supported in many instances almost entirely upon this article, we must conclude that it is wholesome. In its appearance it is not so inviting to the taste as other of the Cerealia, but it contains *much farinaceous matter*, united to a degree of sweetness—it is not much disposed to ascendency, and when subjected to fermentation, affords an ale, which, though seldom strong, is very agreeable.

There are several preparations of oatmeal which are sufficiently palatable and digestible to those habituated to them, but which are seldom used by the residents of this country, and only among foreigners recently arrived among us. With *dyspeptics*, oats in various states of preparation is likely to disagree, becoming *ascendent on the stomach*. A diet of oats, taken at breakfast, in the form of porridge, tends to keep the *bowels soluble* in those of *costive* habits.

We are now to treat of an article as commonly diffused through our country, as the preceding is through Great Britain. It is the *Maize* or *Indian Corn*. This is certainly the *most nutritious of the Cerealia*, affording a farina of the best quality, which has *a degree of sweetness to the taste*, and not *disposed to ascendency*. Its very great value to the inhabitants of the Southern States, and its very nutritive quality, are known to you, from its supplying almost entirely, in many places, the wants of a large portion of our population. The meal by itself, or even with yeast, does not ferment so well as to give a light bread, but when

combined with wheat, it affords one much more so. It is served up in various forms, all of which are nutritive and wholesome, and which it is unnecessary to enumerate.

The last of the Cerealia which I shall mention is *Wheat*. This is an article more commonly employed than any of the preceding, and this not merely from its being nutritive and wholesome, but that it can be formed into a better bread than any of the preceding grains. Bread can be prepared of any *farinaceous* substance mixed with water, and it is commonly found in the state of leavened and unleavened bread. Leavened bread is formed by uniting a portion of leaven, or yeast, an article in the state of fermentation, with a portion of dough, or meal and water, mixed together. As the fermentation progresses, carbonic acid gas is extricated, which being diffused through the mass, serves to separate it, in consequence of which it is said to rise, and its bulk is then increased. The fermentation having progressed sufficiently, the mass is baked, by which two objects are accomplished, the destruction of the fermenting process by the evaporation of its moisture, and the preparation of the article for use. The bread thus formed, is of a spongy texture, is light and friable, and readily mixed with the saliva. In the state of *new baked bread*, it contains a large portion of *tenacious paste*, which is more wholesome, and more easily dissolved, as it becomes older and drier. The property which wheat has of being made into a better bread than any other of the farinaceous seeds, seems to depend upon the large quantity of *gluten* which it contains. This vegetable product we have already explained, and stated that it had qualities so much allied to animal substances, as to be called *vegeto-animal*. It has the character of the most highly animalized substances—it is naturally concrete and ductile, and has a fibrous or membranous form—it gives out by distillation a great quantity of *azotic gas and ammonia*.

Unleavened bread consists of a mixture of meal and water, formed into a firm and tough cake, made thin, to favor its drying, and of this sort of bread, biscuit is the most common.

The properties of leavened bread. In the state of new or fresh bread, few things are more difficult to digest. In this state it forms a thick tenacious paste, which is not easily pervaded by the gastric juice. In proportion as it becomes older, it becomes drier, and more easily digested. *Stale bread* is, therefore, more *digestible* than fresh, and the external surface, or crust, is commonly more wholesome than the internal. The finer sorts of bread are not the most digestible, and are, therefore, best for strong stomachs. Coarse, or brown bread, made of the whole flour, is infinitely preferable for weak stomachs.

The properties of unleavened bread. In this form it is found to agree best with weak stomachs. In equal quantities it is more nutritive than fermented bread—it is also lighter and less liable to create acidity and flatulence. Persons laboring under *dyspepsia*, find it very agreeable and wholesome, and when most articles disagree, biscuit will be readily digested.

Toasted bread possesses many of the properties of this latter article, and may, in all cases, be considered light and wholesome.

It has been considered difficult to assign reasons for the common use

of bread in diet. The best seems to be, that by masticating dry food, a certain quantity of saliva is introduced into the stomach, and without bread animal food would soon become loathsome. Bread, too, by being solid, keeps up a permanent action on the stomach, without which, fluids, however nourishing, are never satisfying to the appetite—in short, it possesses bulk without too much solidity, and firmness without difficulty of solution. It is the safest of all vegetable aliments, and is the best corrector of animal food. Hence it is properly the staff of life, as it can be used at all seasons, ages, and by all temperaments.

With wheat flour the several articles of pastry is made. They are difficult to digest, as they are not always sufficiently baked, and in *all cases of weak digestion, or in dyspepsia, they are to be forbidden.* That paste which is termed the under crust is particularly indigestible.

Another objection may be made to these articles, which is, that being employed as a dessert, after the stomach is filled, to the labor of digestion in the first instance, there is added the additional exertion arising from quantity and difficult solution. It is thus, as Dr. Rush observed, compelled to perform double duty.*

Next to the Cerealia, may be mentioned a class of plants called Leguminosæ, which comprehends the variety of peas, beans, &c. We shall not enter into a description of the several articles. The general character of the class will, I believe, be sufficient to give you an idea of the individual substances composing it, and will be less tedious. The seeds of these plants contain a good deal of *farina*, united with an *unctuous substance*, and a *sweetish taste*. As they contain much oil and sugar, they are nutritious, but the meal being more difficult to digest than that of grain, it agrees best with the strong and vigorous. They also contain much *fixed air*, on which account they are extremely *flatulent*, and are apt to occasion *costiveness*. Employed, however, as this class most commonly is, in its *green state as vegetables*, they are equally *agreeable and wholesome*, being less flatulent and more easy of digestion. It deserves to be remarked, that all vegetables of the pulse kind, as they advance in growth, become more oppressive to the stomach, and, consequently, less salutary in their effects.

Aliments derived from the Animal Kingdom.

Having completed what I thought necessary to be said on the subject of vegetables, I proceed to the consideration of aliments derived from the Animal Kingdom.

The order I shall pursue, will be, to speak of this subject under the several heads of Mammalia, Birds, Fishes, Amphibiæ, &c., comprising nearly the whole extent of the Animal Kingdom, which is literally tributary to the wants of man. Before, however, passing to this part, it may be proper to consider an article which holds an intermediate rank between animal and vegetable aliments, viz: milk—and the present will be the proper place for its consideration.

Milk is essentially an animalized fluid, and when drawn from the teat of the animal, has uniformly a homogeneous appearance—but,

* They contain most of the azotized materials which are known to be the most nutritious.

after resting some time in the air, it discovers itself to consist of three parts, into which it spontaneously separates, viz: cream, curd, and whey. Being destined as the first nourishment of the young, it is of a nature easily assimilated and converted into alimentary matter. We, therefore, find it light, unctuous, and easily digested. As soon as it enters the stomach, it is converted into a curdy substance by a peculiar property residing in the coats of the stomach, and which again becomes redissolved in a healthy condition of the body by the digestive process, and chyle formed therefrom—accordingly it agrees with most constitutions, and where it does not, it depends upon the disordered condition of the stomach. Its disagreeing, therefore, is a proof of a morbid condition of the digestive organs, and the production of much acidity. The acid here coagulates the milk, forming a hard indigestible curd, which frequently occasions colic pains, and other symptoms of indigestion. As an article of diet not only in the sound, but the diseased states of the system, the experience of most persons will bear testimony of its value. In the state of convalescence, milk by its easy digestion, and nutritive qualities, is well calculated to restore the strength of the body, and recruit its wonted energies. It is an article that may safely be directed with the returning appetite, and never, in any instance, have we known it to increase the bilious secretion so often alleged against it, nor excite feverishness. It is generally agreeable to most patients, and from its mild and bland nature, so suited to the taste of mankind, with the facility with which it can be procured, that we consider it one of the most valuable articles we possess.

In Fevers, generally, where thirst exists, milk coagulated by means of acids, and converted into whey, forms a most agreeable and refreshing beverage—and in the form of wine whey, its value is incalculable in the Typhus states of disease, where the impaired state of the digestive organs will only admit of nutriment of the mildest kinds. Here this combination is well adapted, as with the nutriment derived from the whey, we have the cordial and pleasant effects of the wine.

Punch is often made with milk and rum, or brandy. This is more difficult to digest than wine whey, and is often rejected by the stomach in cases where it is much debilitated. It is not, therefore, a proper article in low forms of disease, where the digestive powers are usually impaired. Here wine whey is properly substituted.

In affections of the Intestinal Canal, as in Dysentery and Diarrhoea, milk either in its natural state, or boiled, is an excellent article of diet. In these diseases more especially, diet is of indispensable importance, and by attention to this alone they have often been cured. No article is better adapted to these cases than the present, and from its emollient qualities it seems to allay irritation, and lessen pain. Believing, as we do, in the powerful efficacy of dieting, not only in mitigating the violence of disease, but in preventing its development, we know of no cases in which a diet of milk promises more than in the incipient stages of Pulmonary Consumption. Here, steadily persevered in, it will effect more in allaying that morbid irritability which pervades the constitution, and which is ready to break forth into disease upon the slightest exposure to the exciting causes—it will effect more in re-

ducing plethora, or fullness of the blood-vessels, without impairing the strength of the system, or lessening its powers to resist disease, than any other aliment we are acquainted with, or we may say any medicine.

Considering Dyspepsia to originate either in debility of the digestive organs, or irritability, induced from a variety of causes, we conceive that nothing would conduce more to a recovery, than confining the patient exclusively to a milk diet. My practice, says Dr. Chapman, is to give an emetic first, and then to keep the bowels open with sulphur and magnesia. I then direct the patient to take nothing but milk, if it agrees, to the amount of two or three quarts daily, and in this manner the case seldom continues without a material abatement of its symptoms, and finally a cure.

In other chronic diseases it is much used—in some cases as the sole food. In severe cases of Syphilis, a milk diet will be found very useful continued for several months. Dr. Cullen and others, have attributed to milk the property of correcting vitiated fluids. This is the remains of the old humoral pathology, but has, nevertheless, led to successful practice. Milk, in Lues Venerea and in Cancer, is deservedly celebrated. In cases of Cancer, it has been found useful to restrict the patient to a diet of milk, and in this manner it has been found that the pain was considerably lessened, and that smaller doses of laudanum were sufficient to procure ease. It appears, evidently, to retard the disease.

Much more might be said of the value and importance of milk employed medicinally, but I will now proceed to the second division of my subject, and speak of *aliments derived from the Animal Kingdom*.

Here the aliment is in a very different state from the preceding. It is already converted into a substance analogous to our own, and might be supposed easier of digestion, and more nutritious, and being already animalized, but few rules would be required on this head.

Doubtless it is easier of digestion, and more nutritious, but the solubility of animal food will be affected by a variety of circumstances in the animal itself, or the condition of the system into which it is received. Thus different animals will differ in their degrees of firmness of texture, or in the resistance they will make to the solvent power of the gastric juice—they will differ according to age and sex, as they are fatter or leaner, according to the part employed, according as the flesh has been kept a longer or shorter time before being eaten.

From these circumstances, therefore, rules become necessary as to the choice of food, and from a knowledge of them, with that of the laws of the animal economy, aided by experience, we determine of the wholesomeness or unwholesomeness of an article, of its agreeing or disagreeing with the constitution.

These facts are of great consequence to you in your intercourse with the sick, dieting often completing what medicines have commenced, and always acting in conjunction with it. As it is in animal food that excesses most frequently take place, so it is here that rules become more necessary, and we shall dwell much upon the subject. The differences in the nature of animal bodies depends rather on the state of combination of a few principles, than in the materials of which they are composed.

Their immediate principles are few, and it is these variously modified that give rise to the great variety we observe.

The essential materials of animal bodies are—Gelatine, Albumen, Fibrine, and it is these in conjunction with lime, phosphoric acid, and with various salts, that an animal body is composed.

Gelatine, or jelly, enters largely into the composition of animal substances. It is to be found in a large proportion in skin, and in all the membranous and tendinous parts of bodies. It constitutes the substance called glue, size, isinglass, and it is of this that the nutritive substance jelly, consists. It is readily dissolved by heat, and is procured by boiling the substance that contains it in water. It may be obtained also from bones, from the horns of animals in considerable quantity, and in a greater or less degree from every other part of the body.

Gelatine, in its solid state, is a *semi-ductile transparent substance*, without either taste or smell. When exposed to heat, in contact with air and water, it first swells, then fuses, and finally burns.

The next animal substance is *Albumen*. It also enters largely into the animal compounds. The substance of the nerves, the serum of the blood, and the curds of milk, are little else than albumen variously modified. It is sometimes found separated from other substances, as in the egg, where the white part is formed entirely of albumen. In contra-distinction to gelatine it is coagulated by heat, and that at a low temperature. When once coagulated, it never returns to a state of fluidity.

The last substance is Fibrine. This is to be found in a large quantity in the coagulum of the blood. If while blood is flowing from a vein into a vessel, it is kept in motion by a stick until it cools, a *dense and tenacious substance will collect about the stick, mixed with the red globules*. This, by long washing, can readily be separated, and a white, insipid, and inodorous substance will remain, having somewhat the appearance of fine, white thread, adhering together. This is the fibrine. It is insoluble in water and alcohol, but sulphuric acid converts it into a substance very analogous to gelatine.

It is also the essential constituent of muscles, or flesh, in which it is mixed with, and softened by gelatine. It may also be procured by washing muscular flesh in cold water, until nothing but fibre remains.

These are the essential and general ingredients of animal matters. There are other substances which enter into their composition, such as oils, acids, salts, osmazome, creatine, hematosine, and a peculiar nervous matter.*

The ultimate composition of flesh and blood, is as follows :

Carbon.

Nitrogen.

Oxygen.

Hydrogen.

In the consideration of animal substances as food, it must be obvious

* Osmazome, from osme, a smell, and zomos broth. To this principle broths and soups owe their smell and flavor, and a part of their nutritive principle.

Creatine, from kreas flesh, is a nitrogenous crystallizable substance, insoluble in alcohol.

that from their alliance to our own nature, they will present many advantages over vegetable substances. One of these is, that they are more easily assimilated. Accordingly, we find the stomach of carnivorous animals presenting an apparatus apparently simple in its structure, while that of graminivorous is infinitely more complicated. The food here passes through four cavities, or stomachs we may say, where it is subjected more fully to the vital energies, and undergoes a process considerably elaborated, and rendered fit to be admitted into the animal system. Animal substances, on the contrary, appear to undergo simple solution and assimilation.

The digestibility of animal substances, however, will depend upon a variety of circumstances—these we shall briefly point out. They will differ, then, according to the texture of the muscular fibre, according to age, sex, and size, according to the quantity of oily, fat, and glutinous substances they may contain. Accordingly, those of a strong and pungent taste, are more difficult to digest than those of a milder, softer, and insipid taste—according to the manner in which the animal has been fed.

A few remarks upon some of the circumstances which influence the digestibility of animal substances, may properly be introduced here.

The food of the animal as influencing its digestion.

In general the food of carnivorous animals is more dense, and more compact than that of herbivorous animals—this is, no doubt, the reason which has determined man to give a preference to the meat of the latter.

Motion and rest also influence the condition of the animal fibre. The flesh of those animals which are much exercised, is more dense than those which are not—it is also dryer, and those that feed in the woods and fields have their flesh partaking of the same character. The parts of the same animal which are the most exercised, differ from the other parts of their bodies. The wings of birds are an example of this; they are more exercised, and, therefore, more firm and compact. These circumstances influence digestion. The flesh being less viscid, contains less adipose matter, and consequently more soluble. Idleness and rest produce different effects.

Age.—The younger the animal is, the more tender is its flesh, but not, therefore, more digestible. It contains a good deal of gelatine and viscid matter, which clogs and offends a weak stomach, and, therefore, the more an animal approaches to its full age, the more nutritive it becomes, and the more soluble.

Sex.—The flesh of animals while young does not present any difference in the different sexes, but as they grow old some is manifest. In general the female partakes more of the constitution of youth, and their flesh continues, through the different periods of life, softer than that of males. From this remark, we may except males which have been castrated. They approach to the nature of females in the texture of their muscular fibres, possessing their softness and delicacy, and are, therefore, more tender and soluble than animals which have not been castrated—upon this depends the preference given to the ox, rather than the bull—the wether than the ram.

The *flesh* of animals is influenced by their *being lean or fat*. In lean animals, the fibres are, of course, brought close together, and the tissue they form is hard and tough—in those that are tolerably fat, they are separated by a loose cellular tissue, and by fat which renders them more soluble. Where this is collected in a mass in the interstices of the fleshy fibres, it becomes difficult of solution, and, of course, is digested slowly.

The *flesh* of animals is influenced by being kept a *short time*. The solubility of meat is greater in proportion, as it has been altered by an incipient decomposition, which diminishes and destroys the adhesion of its parts—this is the reason that the flesh of animals recently killed is not so soluble as that of animals which have been dead a short time. We do not by this recommend that it should be eat when tainted, but flesh which has become tender by keeping, is far more wholesome and lighter for invalids.

Different parts of the same animal possess different degrees of solubility.

These circumstances being premised, we shall proceed to speak of the several orders of the mammalia, and will point out their relative digestible qualities in their respective places.

Beef.—At the head of this order we shall place the flesh of beeves, as affording the most wholesome and nutritive food. It agrees better with persons in health, or those whose digestive organs are disordered, than any other meat, is readily digested, and has this peculiar advantage, that it is in proper season throughout the year. For these purposes, however, the animal must be of a proper age, and be properly fed. The flesh of old bullocks, fed and kept in the stall, when unfit for labor, is scarcely digestible. All things being equal, the flesh of oxen is easier of digestion, more nutritive and tender than cows. Dressed in the form of a steak it is most agreeable, and, in general, agrees well with invalids—but there are several other forms in which beef is prepared for the sick, as *beef tea* and the *essence of beef*. The former is made by cutting a pound of lean beef into slices and putting to it a quart of water; this is allowed to boil for twenty minutes, removing the scum as it rises to the surface. To it is added a little salt. This is a preparation well adapted to persons recovering from acute diseases, and is, perhaps, as simple and beneficial as can be employed. The changes which take place by the operation of boiling are the following:—

The fibrine of the meat being insoluble in water, contributes nothing to the liquid. The albumen by the united action of heat and water, is partly dissolved in the water. The hematin, or coloring part of the blood, dissolves in and communicates a red color to the water, but as soon as the water becomes sufficiently heated, the hematin coagulates, and forms brown flocculi, which float upon the top of the liquor, and constitutes part of what is called the scum. The cellular tissue, the bones, the aponeuroses and the tendons, yield by boiling in water gelatine. The fatty matter melts and floats upon the surface. The nervous, or cerebral fatty matter is softened by the heat, and is, in part, carried off during the process. The odor which it evolves when heated, is recognized both in the broth, and the boiled meat.

Other products are also obtained—Creatine, Osmazome, or the extractive matter, upon which the odor and flavor of broth principally depend—Ammonia, sulphuretted hydrogen, a volatile acid analogous to acetic and butyric acid.

The constituents then of broth are—

Gelatine.

Albuminous matter.

Creatine.

Extractive matters—osmazome.

Lactic acid.

Salts.

A little fatty matter..

Saccharine matter.

Water.

If vegetables were added, they will add sugar and mucilaginous matters, volatile oil and salts, sulphuretted and nitrogenized principles.

Essence of beef is prepared by taking lean beef, sliced, and introducing a sufficient quantity into a bottle to fill its body—cork it loosely, and place it in a pot of cold water, attaching the neck by means of a string to the handle of the vessel. Boil this for three quarters of an hour, then decant the liquor and skim it. To this preparation, is added spices, salt and wine, or brandy, according to the taste of the patient and nature of the disease. This concentrated preparation is useful in cases where a small quantity of fluid only can be taken, and is adapted to the low stages of Typhus Fever, or where accidents occur affecting the organs of deglutition, when fluids are of necessity injected into the stomach.

Veal is tender and nourishing, but not so easily digested, nor so well calculated for weak stomachs, as is commonly imagined. Like the young of most animals, it contains much glutinous substance, which renders it viscid, and not well calculated for those whose digestive organs are enfeebled. It is, however, among those articles which are considered light, that is, not exciting feverishness, and on this account is much used for broths in inflammatory diseases.

Mutton is a wholesome and nutritious meat, and is next in digestibility to beef. The quality of the flesh will depend upon the nature of the pasture, and the age of the animal. When fed upon a dry pasture, and kept until it is five years of age, it is in its highest state of perfection.

It is observed that the fat of mutton, from its tendency to coagulate, is less easily assimilated in the stomach than the fat of most other animals. The lean of mutton is, therefore, the preferable part of food.

Mutton broth is apt to disagree with persons having delicate stomachs, especially if the fat be not skimmed off. It is frequently given to promote the operation of purgative medicines.

Mutton, roasted, has been known to bring on an attack of indigestion, caused by the change the fat undergoes by heat, the hircic acid being formed.

In dyspeptic individuals, fat does not become properly chymified. It floats on the contents of the stomach in the form of an oily pellicle,

becoming odorous, and sometimes highly rancid, and in this state excites heartburn, most disagreeable nausea, and eructations. These symptoms are owing to acids being formed, which are exceedingly acrid and irritating.

Lamb forms a considerable article of food. Being light and tender, it is used by delicate persons, but it is not as nutritious as mutton. The same difference takes place between young and old—that is, between lamb and full grown sheep, as between veal and beef.

Pork yields a copious and permanent nourishment, which does not disagree with the robust and laborious, but which, from its abundance of fat, is not wholesome to persons of a weak stomach, or sedentary lives.

Wild Meats.

The flesh of wild animals is more firm than tame, from the exercise they are obliged to take to procure nourishment. To this is added their restless life, the vicissitudes of the seasons, and the intemperateness of the weather to which they are exposed, which harden their flesh, and render their members more strong and compact. These animals have no fat, or very little; their flesh is dryer and harder, and it is of a better flavor; it is also more soluble and easier of digestion than that of domestic animals. For these reasons, they are held in high estimation as food for the table, or as nutritive and wholesome articles for the sick. It is an excellent aliment, and when properly dressed, affords a mellow food, which is easily assimilated to the human fluids.

The Indians who live almost entirely upon the flesh of the deer, and other wild animals, are exempted from many of the diseases to which man, in a more civilized state, is subjected. As food, therefore, it is well adapted to the convalescent, and those laboring under a dyspeptic condition of the bowels.* It may be employed freely in its simple state, but the sweet substances and rich sauces, which are used to correct the dryness of the meat, must be abstained from. There are few other wild meats which are used among us. The most common are rabbits, squirrels, &c., which are seldom used by the valetudinarian, but to which the general observations which have been made upon the subject of wild animals are applicable.

Birds.

Next to animals may be considered the aliment derived from Birds. They are lighter and easier of digestion than the class of which we have spoken, and furnish not only a wholesome, but a very pleasant article of food. They are much in demand for the sick, and those of feeble digestion, and are very generally salutary. The birds which live upon grain and vegetable berries, are justly preferred to those which

* Venison Dr. Beaumont found to be one of the most digestible substances, a circumstance which he refers to its being easily divisible into shreds, or small particles.

live upon insects and flesh. Those birds that live in water, do not afford so wholesome an aliment as those that do not.

I may divide the class into two divisions :

1. Domestic Fowls.
2. Wild Fowls.

Under the first division, I shall commence with the *Gallinæ*, as it is the order of which the greatest use is made. The species most commonly employed is the *Gallus Gallinaceous*, the cock and hen, more strictly so called. The flesh of this species is that which is most tender and the least stimulating of animal food. In point of nutritiveness it is probably inferior to the animal substances which have been mentioned—but in the extent of its application, and in its subservience to a variety of purposes, few articles are more conspicuously useful. Whether employed in the form of broth for the sick, or in a more solid state to encourage the returning appetite, or as a part of the diet of the dyspeptic, its value is equally acknowledged. It is served up in the various forms of roasted, boiled, broiled, and in the state of soup. Superior to either is the Capon.

Very much of the same nature with the species I have been speaking of is the *Guinea Hen*, which affords an aliment equally as tender and nutritive as the preceding.

Next to this is the *Gallo Pavo* or *Turkey*, which though not employed as generally, yet furnishes an excellent article of diet. Its very delicate flavor, joined to its ready solubility in the stomach, would render it applicable to all the purposes for which the *Gallus* and *Gallinaceous* have been recommended. It is exclusively a native of America, though it is now domesticated in almost every part of Europe, Asia, and some parts of Africa.

The next class of domestic birds is derived from the *Anseres* or water fowl. The *Anser Domesticus*, or Tame Goose, is the most important of this class. Though in much esteem by many, it bears no comparison in digestibility with any of the preceding birds. With delicate stomachs it almost always disagrees. We have frequently heard persons in this situation complain, that after a meal, in which they had partaken of the goose, it remained undigested several hours. It should be *prescribed* to *weak* and *dyspeptic* stomachs, its use being only proper for robust persons, and those who take much exercise. When eat too young, its flesh is viscous and not very soluble, and, on the contrary, when old, is hard, tough and indigestible.

Next to these is the *Anas Domestica*, or Tame Duck. This bird, though much relished, is of a strong flavor, and not very easy of digestion, though more so than the preceding. Invalids and convalescents who are liable to eructations, should abstain from this food. It seems to owe much of its insolubility to the fat, which is mixed with the muscular fibre, and in this respect resembles in its texture the goose. The strong flavor of the duck is owing to its sucking its food in the mud and dirt with their bills, living upon insects, worms, putrid fish, frogs, toads, and bad herbs. It is an article which can rarely be taken by those of weak digestion without unpleasant sensations following its use.

The next of the domestic birds is the *Pigeon*. This is also agreeable

to those returning to health, and to invalids. They are tender, nourishing, and digest easily. The young pigeons, or squabs, are preferred.

The second division—the Wild Fowls—is much more numerous, and are generally more digestible.

The Turkey, in its wild state, furnishes a more digestible, if not palatable, food than the tame—the wild Duck is also wholesome, and very friendly to the *delicate* and *dyspeptic*. The variety of game, and birds, are all entitled to the same general character. Under this head is considered the Partridge, Pheasant, Dove, Snipe, Blackbird, &c.

Before concluding the consideration of animal substances, I shall add some remarks upon eggs.

They are a very common article of diet, and from containing much matter destined to the development of the young chicken and its support, they are very nourishing, and in general, of easy digestion. Their use is particularly proper for weak and delicate persons, they repair the energies of the system very well, and are an appropriate aliment for the infirm, and for convalescents. The best mode of preparing them for invalids is boiled soft, and seasoned with a little salt and pepper, or poached. They are sufficiently coagulated when boiled two and a half minutes. When boiled until the yolk is firmly coagulated, their properties are changed, and they become very difficult of digestion. Eggs are subjected to several culinary processes, which render them indigestible, as mixed with butter, and fried with oysters, or veal, they are injurious. Yolks of eggs, mixed up with wine, or brandy, and sugar, form a very nourishing and stimulating drink, which has been very useful in the low forms of disease.

Eggs may be preserved for a considerable time by being coated with varnish, or being immersed in fat, oil, or melted wax, to prevent the access of air. Experiments have proved that eggs coated in this manner may be kept for six months.

The next class from which our aliment is derived is *Fishes*.

The flesh of the greater part of fishes is tender, and easy of digestion, though it is in general less nourishing than other animal food. They have been divided for the purposes of diet into the fresh and the salt water fish. The distinction is of some importance, as we may in general state, that salt water fish are lighter, and more wholesome—and that among these, what are called White Fish are most easy of digestion. Such as are fed in muddy ponds, or other stagnant water, are, of all aquatic animals, the least conducive to health. It is not necessary to distinguish the different qualities of particular fishes, as it is a subject upon which little definite is known—the exception we have made in favor of the white fish seems sanctioned by experience. Galen, we are told, recommended their use to convalescents in preference to all other aliment. They do not vary so much as the flesh of different animals, and they may be considered as intermediate between animal and vegetable food, being less stimulating and nourishing than the former, and more so than the latter. They have been supposed to favor generation. That this is not the case, is proved by reference to the state of the Esquimaux Indians, who subsist almost entirely upon fish, and yet consider it uncommon for their women to have more than six children.

This, however, may depend upon other causes. A diet of fish has been considered as septic, or as rendering a person more subject to putrid diseases. Putrefaction, as we have mentioned, cannot take place in the living human fluids, and, therefore, the objection must be considered highly ridiculous.

Fish, from their strong tendency to putrescency, or from peculiarity of constitution in some individuals, are apt to occasion a considerable efflorescence on the skin, sometimes in certain parts of the body only, but sometimes over the whole body, with febrile symptoms occasionally, and at others without. It occasions some alarm by the suddenness of its appearance, and may, in general, be traced to the cause I have mentioned. The symptoms are soon removed by evacuating the stomach with an emetic.

Of the best method of preparing fish for convalescents :

When the appetite of a convalescent desires fish, it is most soluble and wholesome when boiled, in which form it should be prepared, to which may be added a little butter. Either broiled or fried, they are unwholesome, as a good deal of oil is mixed with the food, which renders it difficult to digest. To dyspeptics generally, fish should be forbid.

Of the *Amphibia*, the only species that need be noticed, is the Testudo or Turtle. The flesh of the Turtle is highly esteemed, particularly the flesh of the belly, which is of a delicate white color resembling veal. This, with the fat, is very nutritious, and of a soft, gelatinous nature. In consequence of its richness, it is seldom eat without a considerable addition of spices, and these circumstances render it unwholesome to convalescents, and those whose digestive organs are weak and impaired. By this class of persons it should be avoided with the utmost caution, as few substances would be productive of such injurious effects upon their systems.

The next division comprehends the varieties of *Shell-fish*, as the oyster, muscles, snail, &c.

The first only will be considered, as it is the only species used among us. Oysters are esteemed as excellent food, and are eaten both raw and dressed in various ways. In a fresh state they are, doubtless, preferable, for by cooking they are, in a great measure, deprived of their nourishing jelly, and of the salt water which promotes their digestion in the stomach. They may be allowed to convalescents in their fresh state, uncooked, or stewed in their own liquor. When fried they are very indigestible, owing to their being mixed with butter and coagulated egg. In some cases, when patients have been confined to a vegetable diet, bread mixed with the liquor of the oyster is very grateful, and may be allowed, as the juice is very easy of digestion. Raw oysters, therefore, may be used with advantage by the robust, the weak, and consumptive.

Of Salted Meats.

They are less nutritive, but more stimulating than fresh—When mixed with a proper proportion of vegetables they are very wholesome, but they are not easy of digestion, and should be forbidden in weak

stomachs. In some cases, however, they may be allowed, where the stimulus of animal food is desired.

Smoked meats, as beef, mutton, venison, &c., are subjected to the same general remarks—they are chiefly used as condiments.

Comparative effects of a diet exclusively vegetable or animal.

The advantages of an exclusively *Vegetable* diet.

Vegetable food is certainly more ancient than any other, and as forming the food of the great proportion of the animals we live on, vegetables either directly or indirectly, are the foundation of by far the greatest proportion of human nourishment. In favor of vegetables, it may be said that man could hardly live entirely upon animal food; symptoms of disease would soon oblige him to desist—and such food, if taken in too great quantities, would stimulate the system into a great extreme, render it weak, and hasten decay.

Vegetable food is much better adapted to children, after they have done with their mother's milk, and for young people in general, to whom too much meat is highly pernicious.

Vegetable diet is favorable to long life when accompanied with little bodily exertion—it has no tendency to produce constitutional disorders, as happens from animal food—any effects it may have on the body are almost entirely confined to the stomach and bowels, and seldom carry any injurious effects to the system at large. Its effects hardly ever appear in the blood vessels. Vegetable food is considered as having a particular influence on the powers of the mind, and tends to preserve a delicacy of feeling, a liveliness of imagination, and an acuteness of judgment.

In proof of the favorable effects of a vegetable diet, it is related that Sir I. Newton was so sensible of the unfavorable operation of animal food, that during the time of writing his treatise on Optics, which is generally thought to be the work in which his genius displayed itself in its fullest force, he lived on a vegetable diet only, and that extremely rigid and simple.

There are many objections, however, to a vegetable diet.

1. Its constant tendency to sourness or ascendency, which, to a certain extent, is controlled by the vital energies, but in persons of a weak habit is distressing to a great degree.

2. Vegetable aliment cannot without difficulty be reduced to nourishment, or assimilated to the nature of man, an objection much felt by those who have weak stomachs, though the vigorous and robust are not affected by it.

3. A considerable quantity of air is extricated from vegetable food when in the stomach, by which it becomes distended, and much uneasiness is produced.

4. Vegetable food is not so nourishing or invigorating as animal food.

In favor of an *Animal* diet, it may be observed that man not being an inhabitant of one genial spot, but a citizen of the world, is exposed to toil and labor, and in many places would require a diet more stimulating and invigorating than that afforded by vegetables. In proof of which it may be stated, that in the colder regions human existence

would be soon terminated, but from the stimulus afforded by animal substances, and that often rendered more so by its rancidity. The Laplander and the Greenlander would soon experience these effects, but from the provision with which they are supplied. *

Animal food, by the necessity we are under of chewing it, not only causes a larger secretion of saliva, which promotes its digestion, but by stimulating the secretory vessels of the stomach, they are excited to discharge a large proportion of the gastric and other fluids, in order that their assimilation may be properly effected.

Animal food is favorable to labor. We can subsist longer upon it than vegetable, that is, we are sooner hungry after the latter, which shews that its nourishment is sooner exhausted. Animal food also consists of parts which have been already digested by the proper organs of an animal, and applied to the same uses, consequently requiring only solution and assimilation—whereas vegetable food must be converted into a substance of an animal nature by the proper action of our own viscera, and, consequently, requires more labor of the stomach, and other digestive organs.

Objections to animal food solely.

Persons who live entirely upon animal food, are subject to various fatal disorders, as the scurvy, the leprosy, ulceration. Animal food disposes much to plethora and fullness of the blood vessels, by which the muscular strength is increased, but at the same time the vessels of the brain are much oppressed, and this leads to heaviness and stupor—whereas vegetable food, from not loading the system with blood, rather diminishes muscular strength. Vegetable food is, therefore, fitter to give clearness of ideas, and animal food is best adapted to labor. Animal food is certainly more nourishing, but is easily carried to excess, and exposes us to danger. The evils from this source are corpulency, obesity, and the effects of fullness of the blood vessels. Animal food is less adapted to the sedentary than the laboring, and, least of all, to the studious, whose diet ought to consist of vegetables. Indulgence in animal food renders men dull, and unfit for the pursuits of science. Animal food alone is not favorable to the attainment of longevity.

On the whole, it would appear that there are advantages and disadvantages connected both with vegetable and animal diet, and that a mixture of both is the proper plan to pursue. Indeed, as we have observed, from the very structure of the human organs, it is evident that nature designed man for a mixed Aliment. His teeth, stomach and intestines, give evidence of this—from the first, he appears equally a carnivorous and graminivorous animal; by the second, he approaches to a carnivorous; and, by the third, he shows a union of both.

The perfection of his character also requires that mixture. For instance the Tartars, who live almost wholly on animal food, possess a degree of ferocity of mind and fierceness of character, which form the leading features of all carnivorous animals. An entire diet of vegetable matter on the other hand, as appears in the Brahmin and Gentoo, gives to the mind a gentleness, softness, and mildness of feeling, directly the

reverse of the former character, but with little elevation of mind—whereas a mixture of both diets seems to be the best calculated to strengthen the constitution, and to maintain the dignity of the human species in its highest state of perfection.

Drinks.

Having completed the consideration of alimentary substances in a solid form, I proceed to another important division, the fluid forms, or drinks. They are entitled to our attention, as they are necessary not only to the support of animal life, but are indispensable for the solution and digestion of food. How largely the fluids contribute to the formation of the organized system you are fully aware,* and it is my duty to direct your attention to such as are most wholesome with their general action on the system.

As the most commonly diffused, and serving as the basis of all other drinks, is *Water*.

It exists every where, and was destined by Providence to be the principal drink of the human race. The cellars of nature pour it forth freely, and we are invited by its transparency, its coolness, and refreshing character, to partake of it. Forming the first drink of mankind, it is calculated for every purpose, being the best adapted of all others for diluting, moistening and cooling, serving as the only universal solvent or menstruum, and the most certain diluter of all bodies proper for food.

It is easy of digestion, and in this respect is opposed to strong liquors, which are difficult to digest.

Though water is considered a simple fluid, it is not so in reality, but is composed of a variety of substances, which give origin to the variety of distinctions which exist, as hard and soft, spring, river, rain, &c.

Water is considered hard which is impregnated with lime, and certain earthy matters, which render it improper for the purposes of domestic economy. It is, therefore, not so commonly employed as soft water, nor does it agree so well with weak stomachs and dyspeptics. The relative solubility of water depends upon the peculiar properties which it possesses, on the various animal, vegetable or mineral particles with which it is impregnated, and the places where it is procured.

Spring water being conveyed and filtered through different layers of sand, stone, &c., before it arrives at the surface of the earth, is much purer than most other waters. The purity of that from wells, varies according to the strata of the earth through which it rises, the most wholesome fluid being derived from sandy soils, where it has undergone a perfect filtration.

Rain water collected in the vicinity of towns, of marshes, especially during the summer, is also impure, but when collected in the vicinity of open fields, it is certainly the purest natural water, being produced as it were by a natural filtration.

As the health of mankind materially depends on the wholesomeness

*The blood contains about 80 per cent. of water, the flesh about 74 per cent.

of the water which is introduced into the system by food and drink, different expedients have been devised for preserving it in a state of purity, especially on long voyages. Charring the inside of the casks in which the water is kept is generally recommended, and it succeeds very well, the water continuing sweet for a long time.

Water may be made pure by filtration, allowing it to pass through stones of a porous nature, by which the impure parts are separated—or if stones are not convenient, by allowing it to pass through sand and gravel—to this may be added pounded charcoal, which is a very useful article for purifying and rendering impure water sweet.

Wholesomeness of water:—

In some parts of Turkey, Persia, Borkaria and Sarmacand, the winters are very severe, having much ice and snow during a large part of the year, and a climate more severe in many parts during winter even than England—the people use no stronger drink than water, milk and sherbet—a kind of pleasant lemonade, without the least admixture of fermented or spirituous liquors—and in health, strength and beauty, they rank the first among the nations of the world.

The athletæ of Persia, as well as the wrestlers and quoit players of Upper Hindostan, are among the most muscular and powerful men, before whom the strongest European would quail, and these drink nothing stronger than water.

In my own journeys, says Mr. Buckingham, during which I rode upwards of eight hundred miles, on horseback, in ten successive days, or more than eighty miles a day, in Asia Minor and Mesopotamia, with the thermometer at the burning heat of 125° in some part of the journey, and below the freezing point in others—I drank only water, and still continue that pure and wholesome beverage, in the enjoyment of health and strength, &c., the capacity to sustain fatigue, such, as if my beverage were either beer, or wine, or spirits I could not possibly enjoy.—*Buckingham's Speech in the House of Commons, 1834.*

Of drinks whose basis is water, but to which additions have been made.

Of *Fermented Liquors*—Beer, ale and porter, partake of the same general properties, differing only from each other in the quantity of their active ingredients.

Beer is a fermented spirituous liquor, prepared from any farinaceous grain, but generally from barley. This grain is generally preferred, because the germination of it may be more easily conducted, and because it develops a greater quantity of the matter of sugar. In brewing, it is first necessary that the barley be converted into malt. This is done by causing the grain to germinate by soaking it in water of a given temperature, which causes it to swell. The water is removed, and it is exposed to a slight heat in heaps, either in the sun, or in an oven, until the shoot begins to appear. When this takes place, the germ is killed by exposure to a stronger heat, and the grain is in that state called malt. The malt is ground into a meal, united with water of a given temperature and there is added to it hops and yeast to promote fermentation. When this has been carried to a proper extent, the liquor is drawn off and placed into casks.

The operation of brewing is of a very precarious nature, and requires great skill and dexterity to manage it with complete success. The quality of the liquor will depend upon the quantity of saccharine matter which has been dissolved by the water, and the manner in which the fermentation has been carried on.

Malt Liquors are held in high estimation as nutritive and wholesome drinks. They are salutary, more nourishing, and contain less spirit than wine; they are, consequently, less heating, and not so irritating, but they are capable of producing intoxication. Possessing these qualities, they are subservient to a number of useful purposes, either as refreshing drinks, or for supporting the system under great bodily fatigue, in which respect they are far superior to distilled spirits, or for strengthening a feeble constitution after the attacks of acute diseases. The only objection to their use is, that containing a portion of fixed air, which is disengaged in the stomach, they are liable to occasion flatulency, and sometimes a looseness of the bowels. When these effects do not follow, it will be found that persons who live chiefly on a vegetable diet, and whose stomachs are weak and impaired, may be greatly invigorated by a moderate use of strong and bitter malt liquors. In the low forms of fever, when a desire is expressed for their use, we think the patients may be indulged, and it will be found very grateful to the stomach, and tonic and invigorating to the system at large. To persons already plethoric, or disposed to become corpulent, they should not be used, or only the lightest beer employed.

Cider is the juice of apples, which has undergone a certain degree of fermentation. It has a sweet, with somewhat of a pungent taste, which qualities are in a greater or less degree according to the species of the apple from which it is made, and the manner in which the fermentation has been carried on. It is a cooling, pleasant, and wholesome liquor during the heat of summer, if it has been prepared without foreign ingredients, and properly fermented. It has, however, a strong tendency to run into the acetous fermentation, and where this disposition cannot be controlled by the vital energies of the digestive organs it is extremely prejudicial, and cannot be taken by persons laboring under a weak state of these organs. To the dyspeptic it is particularly unwholesome, and this, with the preceding articles, must in all cases of this disease be prohibited.

Wine is a nourishing drink, and one which is as agreeable as it is salutary, when of a good quality and used in moderation. Used in moderation it certainly conduces to health, especially in weak and languid habits, hence it has been emphatically called the milk of old age. It accelerates the circulation, invigorates both the bodily and mental faculties, increases the action of the stomach, and is of essential service to convalescents, especially to those who are recovering from the severe attacks of Typhus, or malignant fevers. In the state of wine, the stimulant operation of alcohol is less sudden, and more permanent—it excites action without exhausting the irritability in any great degree, and from its gradual operation may be considered, in comparison with stronger spirits, as exerting a tonic effect.

Wines are of several descriptions. They have been divided differ-

ently by different writers. The following division seems to us to be the most simple and comprehensive :

1. The acid Wines. This comprehends the Rhenish, the Hock, and all those of the North of Europe. They are least heating, and best calculated for hot weather, passing freely by the kidneys and gently moving the bowels. But all thin and weak wines, though of an agreeable flavor, are readily disposed to become acid in the stomach, and aggravate all arthritic and calculous complaints. Hence an occasional debauch with such wines is notorious for inducing a fit of the gout.

2. The sweet wines form a numerous class, including the many sorts produced in Hungary, Spain, France and Italy. Malaga Wine from Spain—Tokay from Hungary—Wine of Alby, one of the best wines of Italy, in no respect inferior to the Falerne—Canary Wine, are examples of sweet wines.

When these wines are properly fermented, and have not been adulterated by the addition of sugar, honey, &c., they are wholesome, and are adapted to the weak and convalescent. They are seldom obtained good in this country, and are, therefore, but rarely employed or recommended. It is said that Sydenham preferred the Canary to any other wine.

3. The mild wines, such as Claret, Burgundy, Sherry, Madeira, including also some of the wines of Champagne, are more cordial than the acid wines, and can be taken with greater safety than the sweet. They are, on the whole, the best calculated for a general beverage, and whatever effects they may ultimately produce, if the dose is not too frequently repeated, they furnish the means of enjoying the pleasures of the table without, at least, any immediate injury to the health.

4. The austere and astringent Wines. The principal wine under this head is Port, which, when not mixed with too much brandy, is generous and stomachic. It is apt, however, to occasion costiveness, and on this account is much employed medicinally for restraining immoderate evacuations from the bowels, combined with other nutritive substances. While, therefore, the moderate use of wine is considered wholesome, and promoting digestion in a high degree, we cannot too strongly deprecate the evils which arise from its abuse.

Wine, though agreeing in due quantities with the healthy, and favoring the operations of the bowels, produces very opposite effects in those laboring under intestinal derangements.

To the dyspeptic, and persons subject to acidity in the first passages, it is invariably prejudicial, and must be avoided.

Wine mixed with water forms a very pleasant drink, and may be usefully employed to correct the bad qualities of water.

Mr. Brande has published a table representing the quantities by measure of alcohol, sp. gr. 825, contained in different wines and other fermented liquors.

Of Port, the average is 22 per cent. and 96 pts.

Madeira, 22.27 ; Sherry, 19.17 ; Teneriffe, 19.79 ; Lisbon, 18.94 ; Malaga, 17.26 ; Burgundy, 14.50 ; Hock, 8.88 ; Champagne, 12.80 ; Frontignac, 12.79 ; Tokay, 9.88.

Of these wines, Port or Madeira are the best in disease when they

can be procured. If they cannot be obtained, Teneriffe and Sherry may be next used, as less likely to prove ascrescent than the Lisbon. Champagne is a very diffusible wine, acting very quickly, on which account it has been employed advantageously in Typhus. Port Wine possesses much astringency, and is, therefore, used in chronic diarrhœas, and in intermittent fevers. It is, however, often much adulterated. The French wines, as Claret and Burgundy, contain much ascrescent matter, and are to be forbidden in gouty persons, or other cases.

The low French wines are about as strong as our Cider—are much used for ordinary drinks.

Of other fermented Liquors—

Cider—highest average, 9.87; lowest, 5.21; Ale, 7.32; Ale, 6.87; Brown Stout, 6.80; London Porter, 4.20; Small Beer, 1.28.

With these few and short remarks, we conclude the consideration of a very interesting article, our limits not allowing us to speak more at length.

Of Distilled Liquors.

These comprise all those liquors obtained by fermenting vegetable, and particularly farinaceous substances, to a certain extent, and afterwards subjecting them to distillation. All distilled spirits consist of a great proportion of alcohol, or pure spirit—a greater or less quantity of water, and generally a small portion of an empyreumatic oil. The quantity of alcohol in the several kinds of liquors, is the following:

Brandy, 53.39; Rum, 53.68; Gin, 51.60; Scotch Whiskey, 54.32; Irish Whiskey, 53.90, Holland Gin. 56.00.

The essentially active principle in these different liquors is the alcohol, and the difference in flavor is derived from the different substances from which they are obtained. For from whatever substance obtained, they are found, if freed from their volatile oil, to be essentially the same. Their effects differ also very little from each other.

In a medicinal point of view, spirits have some advantages. They are employed when the system has been suddenly exhausted of its strength, or reduced by the long continuance of Typhus, or malignant fevers, to such a degree, that the milder stimulants do not exert any action. By being separated from all the fermentable materials which exist, combined with the alcohol in fermented liquors, they are less liable to become acid in the stomach, and have, therefore, been recommended in those cases where the stomach is apt to be troubled with acidity in preference to wines or malt liquors. That this is the case we know from weak brandy and water, or other liquors agreeing with weak stomachs, when wines become sour, and produce all the distressing effects of acidity of the stomach.

They are useful when the body has been exposed for a long time to wet weather, more especially if it has been combined with cold. Here a moderate quantity of spirits is not only safe, but highly proper, to obviate debility, and to prevent a fever.

Happy would it be for mankind, if the use of these substances were limited only to these cases. But the abuses which are practised with

them, are such as to cause the discovery to have been considered a fatal one, and the last it were to be wished which had ever been made. Of the diseases which arise from the use of vinous and spirituous liquors, we would, were it possible, in the language of Rush, for us to speak with a voice so loud as to be heard from the river St. Croix to the remotest shores of the Mississippi. They are numerous, complicated and deadly, and have destroyed more than famine, pestilence, or the sword. They may be divided into two classes.

1. Those which appear during the paroxysm of drunkenness.

2. Those which are induced by habitual intoxication.

The increased circulation of the blood tends to produce congestions in different parts of the system, and in the brain, hence apoplexy is frequently induced. The consequences of a less degree of compression of the medullary substance, or constitutional predisposition, are Epilepsy and Convulsions.

Of the diseases of the second class, may be mentioned—

Inflammation of the Eyes, Carbuncles, Guttæ Rosacæ; Hepatitis, both acute and chronic; Gout, Schirrus of the bowels, Jaundice, Dyspepsia, Dropsy, Tumors, Paralytic Affections, Madness, and Idiotism. After such a catalogue, well may we exclaim with Shakspeare—"Thou invisible spirit of wine, if thou hast no other name to be known by, let me call the Devil."

Of other drinks which are employed by common consent in every quarter of the Globe.

1. Coffee—is the product of a tree originally a native of Arabia, but is now cultivated in the East and West Indies, and some parts of America. The best Coffee is brought from Mocha in Arabia.

There are few articles which have occasioned such discussion regarding its properties and virtues as the present, and it would seem hardly possible to reconcile the contradictory statements which have been made—We shall endeavor to point out the circumstances under which it is wholesome or unwholesome.

It was customary in former times to burn it a great deal, which gave it an acrid and empyreumatic taste—at present it is not burnt so much, and it is also boiled less. Coffee made by infusion is justly preferred to that which is boiled with the grounds. When made in the form of decoction its volatile parts evaporate, and it is indebted to these particles for its principal qualities, and when deprived of them, it acquires a more bitter taste.

With respect to the properties of Coffee, it is stimulating and exciting—enlivens the spirits, promotes the solution of the aliments in the gastric juice, and thus aids digestion. When used as an article of diet, more especially by sedentary and delicate people, it should be mixed with a large proportion of milk. Its utility in promoting digestion is supported by the practice so common in all warm countries, of drinking it after dinner, when its agreeably exciting operation favors the solution of the food taken, and removes the uneasiness which succeeds too full a meal. It is for this purpose drunk without milk.

Coffee only becomes *pernicious when excessively indulged in, or drunk too strong*. Possessing narcotic qualities, and affording little nourish-

ment in itself, but from the sugar and milk united with it—the system from these circumstances becomes irritable and feeble, and nervous symptoms are superinduced. When this practice is indulged by persons already delicate, and of weak constitutions, it is not a matter of surprise that the organs of digestion become impaired, and the appetite destroyed, nutrition impeded, and general debility with nervous symptoms be produced. As a domestic remedy, it has been employed in some of the cases of Spasmodic Asthma, after opium, cicuta, and such narcotic substances have been taken, to relieve headache, giddiness, and nervous affections, which attack some persons in the morning after taking an opiate at bed time.

Tea is another article as extensively diffused, if not more so than Coffee. Tea is afforded by the leaves of the Tea-tree, a plant growing in China and Japan. It was originally imported into Europe for medicinal rather than dietetical purposes, and was first used in Great Britain about the year 1666. Much has been said and written about the medicinal properties of Tea. In its natural state it is, doubtless, narcotic, on which account it is not employed by the Chinese until it has undergone the operation of heat in preparing it for use, and been kept a twelve month. Tea, when drank in moderate quantities with sugar and milk, invigorates the system, and produces a temporary exhilaration. These effects are derived not only from the stimulus of the Tea, but from the warmth of the fluid employed. It becomes pernicious when used under the circumstances which have been pointed out relative to Coffee. Infusions of Tea are safe and pleasant refreshment, after undergoing great bodily fatigue, or mental exertion. They afford an agreeable beverage to those who are exposed to cold weather—at the same time tend to support and to promote perspiration, which is otherwise liable to be impeded. The states of disease in which Tea and Coffee are injurious, will be pointed out as we progress.

Condiments.

A few words may be said on this subject.

The whole of our seasonings consist of salt, vinegar and aromatics. If taken in moderation so as to render the food sapid, they promote the appetite and favor digestion. They produce bad effects by stimulating to the use of food in a greater degree than can be well supported by the digestive organs, and hence many of the symptoms of indigestion are often excited. In themselves, when taken in moderation so as not to injure the tone of the stomach by their stimulus, they are salutary and even necessary. The aromatics, as pepper, ginger, cinnamon, cloves, nutmeg, &c., are all stimulating, and the irritation they produce in the stomach is propagated throughout the system. They sensibly augment the contractions of the heart and arteries, and increase the heat of the body. They are not proper when a predisposition to disease is to be kept under, and should be avoided by the plethoric, and those laboring under chronic diseases.

Pepper is probably one of the most valuable condiments we possess.

The utility of Capsicum in the diseases of the digestive system, we have already mentioned.

Vinegar, as well as other vegetable acids, excites the action of the stomach, augments the appetite, and promotes digestion. It appears even to prevent, rather than promote the acidity of vegetables. It, however, cannot be employed by weak or dyspeptic stomachs.

It is proper to observe, that all acids of the vegetable kingdom taken to excess, finally enervate the stomach, and throw it into a disordered state—this is the reason why they are injurious to feeble persons—to the meagre and cachectic, and generally in all cases depending upon debility and exhaustion.

Of the safety and utility of salt as a condiment.

The addition of this article to our aliment is much more important than is commonly imagined. Its importance to animals generally, is evinced by the long journeys they have been known to take to reach the salt licks. The use of salt seems to prevent the generation of worms in the intestinal canal.

The consideration of aliments being so far completed, it only remains to make a practical application of the subject to health and disease.

Of the diet proper in health.

If the proper regulation of aliment is of such importance in leading the system from a diseased to a healthy state, of how much consequence then must a proper attention to it be, in keeping the body in a sound state. So much will be admitted by every one, and happy should we be, if we could lay down certain *fixed rules by which the respective salubrity, or perniciousness* of every species of aliment might be determined in its application to the individual. Such rules, however, do not exist in nature, and what remains for us, is to point out general directions, leaving it to the experience of the individual, to time and circumstances, to determine what ought to be used, and what abstained from. In the choice of aliment, as Dr. Arbuthnot has observed, the nature and measure of the materials of which our body is composed, and what we take daily by pounds, is at least of as much importance as what we take seldom, and only by grains and spoonsful. While we admit the importance of these remarks, it should also be observed that too close and over-anxious observation of rules and precepts is to be deprecated. It has frequently (as Dr. Heberden has remarked) been the occasion of injury to the healthy, and has not seldom augmented the indisposition of the sick.

In a state of health, any kind of food is wholesome, and among different communities we observe the greatest diversity to exist—from vegetables to fish, from fish to animals, in almost all forms and states of preparation, and yet health appears to exist in all. In a state of health, the consideration of quality merely in our diet is of less importance than has frequently been thought—but even here, from the artificial state of society, some limitations should be made.

The first rule that we should lay down is, that the most simple dishes are the best and most nutritious. The multiplied combinations, which are too common, though they may please the palate, are not conducive to health. By simplicity in diet the stomach is not injured in its tone, and the food taken undergoes more full digestion than under contrary

circumstances. This is what determines the relative nutritiveness of an article, for in proportion as our food is restorative and properly digested, our bodies are preserved in health and strength, and our faculties continue vigorous and perfect. The influence of simplicity in diet is apparent, not only in the strength, activity, and exemption from various diseases so common among the laboring classes of many countries, but in its power to restore to full activity and health, constitutions previously impaired by excesses of various descriptions.

The next rule which we should enjoin, would be to eat, if possible, of one kind of meat only at a meal. The strongest argument that we can urge in favor of this rule, is the little probability of any indulgence proceeding to excess, and when we say this, we urge an effectual antidote to the dangers which arise from eating, influenced as they most commonly are by quantity rather than quality.

We are aware of the great difficulties which must arise in any directions which can embrace such a variety of classes as the healthy part of every community is composed. The man of sedentary habits, the professional man, and the laborer, all require directions adapted to their particular situations—custom and experience must determine what these should be, rather than any abstract considerations. But though quality may be considered a matter of indifference, quantity is by no means an unimportant point. For though many in robust health, and strong digestive organs, rise from the most plentiful, mixed, and rich repasts, without any apparent uneasiness, yet they are not always secure from the dangerous effects of a full meal. The many instances of sudden death are attributable to this source very often, and it was the opinion of Dr. Fothergill, who paid great attention to this subject, that more people suffered from immoderate eating than hard drinking.

Besides, various inflammatory diseases are often produced from fullness of the blood vessels, with a train of what are called nervous and chronic affections. To the delicate and valedictory, the subject is particularly important. They do not rise from a full meal with the same exemption from uneasy feelings as others more robust, and in all cases it will be found that their particular complaints have been aggravated. We often hear persons in this situation “complain of the ill effects of this or that particular diet, when, perhaps, their sufferings arise from the quantity of all, rather than from the disagreement of any.” The *how much* must be determined by every individual, but those who are happy enough to abstain at the first sensation of satiety, have made great progress in the art of maintaining such a command of appetite, as under most chronic indispositions is one of the greatest aids to recovery, and in health is one of the surest preservatives against them.

The *best rule seems to be*, to use as much abstinence as is consistent with the preservation of strength and freedom of spirits; and that with heaviness, inquietude, restlessness, and aversion to application, we should retrench our allowance. If tender people, and those of the learned professions, would go by this rule, their uneasiness in many chronic affections would be much lessened.

As life advances, the necessity of attention to quality and quantity is still more apparent. For as the powers of the stomach become weaker

with those of the body, so ought we to diminish the quantity and quality of our food, taking care that it be as nutritious, and as easy of digestion as possible.

Next to diet in health, we will consider its importance during the stages of convalescence.

To the convalescent, the subject of diet is of great importance. As the digestive organs have been weakened on a par with the rest of the system, so the diet should be of such a nature as will satisfy the returning appetite, without oppressing or overloading them. An attention to this direction is the more necessary, as invalids are often subject to a false appetite, a craving that does not arise from the demands of health, but from the morbid condition of the juices of the stomach, which prompts them to eat more, and more frequently than nature requires. "Whence it happens that such people are often disposed to take in much more than can be digested, to devour their food rather than eat it, by which means their sufferings are increased—the disease gains ground, defeats every purpose of the physician, and leads them into some permanent and incurable malady." The experience of every physician will suggest cases, where relapses have occurred from inattention to the quantity and quality of diet, where, after the most favorable prospects of recovery, the patient has had his disease renewed, and with the more danger, as relapses are often more to be dreaded than the original complaint. The diet in *such cases* should be *light and easy of digestion*, such as will recruit *the strength without oppressing the stomach, or stimulating the arterial system*. The different preparations of milk, sago, and arrow root; broths of chicken, veal, beef; soft boiled eggs, a part of a broiled chicken or pigeon; oysters; the lighter fish, with some of the least objectionable vegetables, are proper in this state, recollecting that in these cases quality is of as much importance as quantity.

As a means of *depletion* in many *diseases*, the importance of dieting cannot be doubted, and in several forms of disease which I shall mention, it gives the best support to medicine; it is the best medicine, I might almost say. In fact, much of the administration of medicines might be superseded, would mankind submit their appetites to the control of reason. Dr. Cheyne remarks, that any one may loose a pound of blood, take a purge, or a sweat, by dropping the great meal, or by abstaining from animal food, or fermented liquors, for four or five days, as effectually as opening a vein, swallowing a dose of pills, or taking a sudorific bolus.

We shall speak of the diet proper in Febrile, Inflammatory, and the low forms of diseases—in Dyspepsia, Dysentery, Diarrhœa, Gout, Consumption, Scurvy, &c., regretting that in these diseases its importance is so much overlooked. Hippocrates, it is said, hardly describes a disease without recommending a regimen of life adapted to its cure. Other of the ancient physicians have declared, that not only in chronic, but in acute diseases, the cure depends much on the regulation of diet and way of life. A circumstance (says Dr. Huxham) seemingly *trivial*, has caused this part of medicine to be less considered than it ought to be, viz: that the directions for the medicines alone are accus-

tomed to be given in writing, whereas those which regard diet and regimen are, generally, in cases which require medical attendance, given verbally. This has caused them, in some measure, to be less attended to, and even held as inferior in their nature and consequence to those which concern the apothecary.

The Diet in Febrile and Inflammatory Diseases.

The first symptom of Fever is debility, and to remove this all the well meant efforts of the patient's friend are directed. This weakness is met with cordials and generous diet. The unhappy patient is put to bed, warm liquors, spirits and water administered, and the stomach loaded with nourishing broths and cordials. The consequence is that every thing is hurried on from bad to worse.

If there is any thing true in medicine, it is that debility during the first day is only apparent, and that the first stage is that of oppression. The system in this state should be *unloaded* and tranquillized, and the stomach relieved from the *drudgery of digestion*. As well might we screw up a barometer in order to bring fair weather, as thrust down nourishment into a powerless stomach, and a feverish frame, in order to recall strength.

During the existence of the disease, less caution is necessary than at first would be supposed. The stomach at this time loaths the taking of food, and it seems to be one of the instincts of nature, to effect the restoration of health. Certain it is, that the stronger kinds of aliment are generally rejected by the patient, and, if taken, they excite such oppression, and increase of unpleasant symptoms, that often they are thrown off by the stomach. Still it is proper to know what can be taken with impunity, and how diet may be so managed as to be subservient to medicine.

As thirst is at first the most distressing symptom, this may be allayed by water, which is the most agreeable beverage to the patient, or water with various ingredients—as tamarinds, lemon juice, or syrup, or toast water. And here, we may observe, that we do not know any drink which is more refreshing, more salutary, and in which patients may be more freely indulged in, except in a few instances, than water, often rendered more agreeable by ice.

In the decline of the disease, the sick often crave the lighter sorts of food, and may use them with impunity—but here the officiousness or mistaken kindness of nurses and friends mislead the sick. Under an impression that he will die for want of what they call nourishment, or that the debility is greater than it really is, they are for pressing upon him articles which his own instinctive desires would have led him to decline, and which would injure him. In these cases, physicians should observe a decided tone, and until health is restored, restrict the returning appetite of the patient to articles neither stimulating nor heavy, as eggs, broths, milk, and its preparations, chickens, oysters, &c.

There may be several degrees of low diet.

In *Inflammation of vital organs*, as the brain, stomach, &c., a diet of toast water, or iced water, is, perhaps, sufficient, which is the lowest

diet. Although it has not been ascertained how long it would be safe in these diseases to abstain from articles of food entirely, yet certain it is, that patients in violent inflammation can subsist a long time upon the simplest fluids. A diet of this sort co-operates with the treatment pursued. Under this grade of diet, we might place infusions of sage, balm, green tea, gruel, barley water, &c.

In the second grade of low diet, we may rank panada or bread, boiled with water and sweetened with sugar; it should, however, be thin, mucilaginous drinks, chocolate, taking the precaution to separate very carefully the oily part, the remainder is easy of digestion. Infusions of the cocoa shells may sometimes be substituted for the chocolate. Bread, rice—the summer fruits may also be allowed, beef tea, &c.

In the third degree of low diet, we may give the mildest animal food, oysters, milk, soft boiled eggs, &c.

The diet in the low forms of disease. The support derived from a diet judiciously administered is incalculable. It must not be given at irregular intervals, and in quantities oppressive to the stomach, but in moderate proportions, and at proper periods. The little, and often, can in no instances be more positively enjoined, than in these cases.

As the digestive organs are extremely enfeebled, diet should be conveyed in forms adapted to their state. Of these forms wine whey is one of the best—it is not so stimulating as to excite fever, while the whey is most nutritive and digestible—broths that are nutritious should be employed—the preparations of arrow root seasoned with wine and spices, animal jellies, wine and water, brandy toddy, milk punch, &c.

In Chronic Diseases—

It is, however, more particularly in chronical affections that the effects of dieting are most conspicuous, and may be enumerated as the means of renovating health and preventing the occurrence of disease. To the subject of indigestion, the nature, quality and quantity of food, is of infinite importance, and we shall be excused for dwelling a little upon this subject, referring you more particularly to the excellent work of Wilson Philip, on Indigestion.

To the *Dyspeptic*, it is a matter of importance that his food be introduced slowly and moderately into the stomach, by which means it is duly masticated and mixed with the saliva. The stomach, too, undergoes a gradual distension, and the first feeling of satiety can be carefully attended to. A single mouthful after this oppresses a weak stomach. In the language of Wilson Philip, if he eats slowly, and attends to his feelings, he will never overload his stomach. As food not digested often excites considerable irritation, it is a matter of consequence to know what sort may be taken with impunity, and what is most easily digested. It is commonly thought that any thing which is light may be used, but this is incorrect. By the term light, is meant such articles of food as possess little stimulus, and do not excite a feverish state; but these articles may, nevertheless, be not easy of digestion.

Thus young meats, considered light, as chickens, lamb, or veal, are not so easy of digestion, as mutton, or beef, which are considered heavy. Vegetables to which the term light has been applied, as less calculated

to excite fever, are not so easy of digestion as animal food. As a general rule, the flesh of animals of mature age, or even old, agrees better with dyspeptics than that of the young, for reasons you are acquainted with. All forms of food which contain much fluid are uneasy to weak stomachs, as broths, soups, stews, &c. The gastric juice being already weak, is by this further dilution rendered incapable of digesting the aliment taken, in consequence of which it becomes acrid and oppressive. Oily articles of food are also difficult of digestion. Meat mixed with much fat is liable to the same objection, hence pork and tongues, ducks and geese, in which the fat is blended with the fibre, are never agreeable to the dyspeptic stomach. Fish are less easy of digestion than the flesh of animals, and as they are less nutritive, should seldom be taken. Butter most commonly is oppressive, and it is said to be more so than the fat of meat.

Of the Diet which suits the Dyspeptic. The flesh of beef, or mutton, not too young, is probably best suited to a weak state of the digestive organs. This may be roasted or boiled, and in either way it will be found wholesome. Most sorts of game will be found to agree, particularly venison and birds. Fowls are more digestible than chickens, turkeys less so than fowls. Eggs boiled soft are easy of digestion, provided the patient confines himself to one or two. Milk and cream are indigestible in proportion to their richness, but the same proportion of cream mixed with water is more digestible than milk. Cheese is more difficult of digestion than butter or fat. Bread should be either stale or unleavened, as few things are more difficult to digest than new bread.

Of Vegetables, few of these will be found to agree with the dyspeptic—the best are Irish potatoes—the worst cabbages, beans, peas, raw vegetables of all kinds are oppressive, lettuce appears to be the least so.

Of Fruits—Melons and cucumbers are difficult of digestion, apples, peaches and strawberries least so, but few fruits will agree.

Of Drinks—The best is water, or toast and water. Wines and fermented liquors of all descriptions must be avoided. If spirits are required, the least objectionable is brandy, which must be drank largely diluted with water. Tea and coffee must be avoided entirely: Weak tea or coffee you might suppose could be indulged in, but in no shape or form ought they to be allowed. Milk, or milk and water, may be substituted for them at breakfast.

By a diet strictly and vigorously enforced, we do not err in declaring that more may be effected in relieving the distressing tormina and pains, the acidity, eructations, headache, than by any medicines whatsoever, where these precautions are not enforced. We have known several patients by merely pursuing a diet such as we have pointed out, so far cured as to experience none of these symptoms which attend on this disease, and this without the use of any medicine. The feelings of health continuing with their abstinence, but interrupted with the slightest indulgence.

In connection with Dyspepsia, we shall treat of the propriety of diet in *Dysentery* and *Diarrhœa*. In these cases, attention to dieting is of the first importance. Medicines will avail but little, if, after removing irritation in the first instance, we are not careful that it may not be sub-

sequently excited by inattention to the nourishment taken in. For food, undigested, will as certainly excite pain and uneasiness, promote discharges from the bowels, with tormina and tenesmus, as the morbid matter of disease itself. What else could be expected, when this crude and unassimilated substance is applied to the tender surface of the bowels? As the disease is inflammatory, we should make choice of such food as is least irritating; and that the digestive organs should be subjected to as little exercise as possible, the nourishment should always be fluid. It should consist of light broths, boiled milk, preparations of arrow root or sago, without seasoning, panada, rice gruel, barley water, solutions of gum arabic.

In *Gout*—With a view to the importance of dieting in this disease, we shall glance slightly at the causes of gout. There can be little doubt but that this disease has its origin in indulgences in high living and drinking. It is chiefly to be found among the wealthy, and those whose circumstances place them above the necessity of labor, or active exertions. Sydenham, whose observation of disease was unrivalled, says, "that the gout generally attends persons who have spent the greater part of their lives in ease and indulgence, both in the use of high living, of wine and of other spirituous liquors, and who, in consequence of the sluggishness of advanced life, have ceased from all those exercises to which they were accustomed in their youth." It certainly seldom attacks those who use much bodily labor, or who are much confined to a vegetable diet, or who make no use of wine and spirituous liquors. It is said to be a disease not known among the inhabitants of Turkey, who, from their religion, are restrained from the use of spirits. These circumstances being premised, we shall proceed to state the kind of diet proper to prevent a paroxysm of the gout. If what we have said of the causes be correct, there can be no doubt as to the treatment; which will consist much in the employment of temperance and exercise. The importance of temperance and a strict attention to diet, is admitted by every one, and we cannot better enforce these remarks, than by citing the authority and practice of the late Dr. Gregory, of Edinburgh. In his own person was strongly exhibited an animating example of strict temperance with corporeal exercise, in completely banishing the gout from the constitution, although he had it, hereditarily, from both parents, and suffered some severe attacks at an early period of life. His diet was chiefly broth, or a sparing quantity of plain animal food, with little or no wine, and by these means he kept off the disease for thirty years, and was hale and strong. Dr. Heberden likewise observes, that though complete cures of the gout are rare, yet he has seen more than one instance in which, by total abstinence from animal food and wine, the patients were restored from a state of extreme debility and misery to such a degree of health and strength, as rendered their lives no longer useless to others, or painful to themselves. A remarkable case occurred in France, where a person was imprisoned, and kept very low for twenty years. When liberated, he was perfectly relieved of his gout, which had before made him a cripple. But for these purposes, the diet should be steadily and perseveringly pursued. It should

consist of plain animal food, of vegetables, or milk, with abstinence from wine or other fermented liquors. Under these circumstances, a cure may, in most cases, be effected, when the patient is not over the age of thirty or thirty-five, even if he should already have experienced two or three paroxysms. In older habits, where the disease is of longer standing, a complete cure cannot so confidently be expected, but experience has shown that the severity and consequent evils of the disease, may be effectually mitigated by temperance, even under such circumstances.

In *Consumption*—However various be the causes of consumption, and whatever differences of opinion may be entertained as to the medical treatment, all agree that attention to diet is indispensable. It is, indeed, of the utmost importance, as well as attention to every other circumstance which can influence the functions of the body. "His food, his drink, his clothing, his amusements, must be regulated with a rigid correctness, so that the whole may combine with medicine, in the accomplishment of the same object, viz: that of ridding the constitution of a disease of fatal tendency, and restoring it to its healthy condition." By attending to diet, the sufferings of the patient may be mitigated, and in all cases the progress of the disease will be protracted. It is, however, principally in the *forming* stage of the disease, while symptoms are but threatening, that the greatest benefit is to be expected. Here it is that diet and regimen become the business of the patient. His life must be regulated upon the principle, that whatever will excite the arterial system, or increase the heat of the body, must be avoided. These remarks being premised, we shall proceed to point out the diet which is proper to be employed. Animal food must be abstained from, or sparingly used, as well as all stimulating drinks, and in place of it milk should be substituted, with vegetables. Milk is particularly well adapted to these cases; it does not stimulate, and it affords an article of diet which generally agrees with every one, and is easily digested. All the farinaceous substances may be employed, and in cases where the inflammatory action is reduced, the lighter sorts of animal substances. By these means, with attention to exercise of such a nature as is calculated to restore the vigor of the system, much may be done to prevent the approach of consumption, if not to cure it. At the school at Hofwyl, in Switzerland, the effect of diet and regimen are particularly obvious, in restoring unsound to sound constitutions. The diet of the poorer boys consists of the following: At breakfast, a piece of bread, and an apple, or something as simple; their dinner consists of vegetables alone: supper, a kind of hasty pudding, with whey and boiled potatoes. Once a week they have wine and meat. Several hours of the day are devoted to exercise in the mechanical arts, to agriculture, or gymnastic exercises. The effect of this treatment is, that many who are received with scrofulous affections are, by the effect of this simple and wholesome diet, by cleanliness and labor, restored to health, with scarcely any medicine. Some of them were, upon their admission, feeble and debilitated, unable to endure cold, heat, or labor; but when once they were accustomed to the regimen of the school,

they willingly encounter rain, storms, and severe cold, whenever their work calls them abroad, without shrinking from, or regarding the exposure.—*Griscom's Year in Europe.*

The last disease in which we shall speak of the importance of dieting is in *scurvy*. This disease has been supposed to arise from the long use of salted meats, unmix'd with fresh vegetables; hence the common phrase sea scurvy, from its more frequently occurring at sea. It is now known not only to be produced by the use of salted provisions, but from many other articles, which contain a diminished portion of nutritive matter. Thus, it has appeared in armies, where no salted provisions were employed; and it is stated by Dr. Nitzsch, in his account of the disease in the Russian armies, quoted by Dr. Lind, as prevailing at the siege of Asoph, in 1736, though no salted provisions were employed. They had, he says, but little fuel to dress their victuals, and the fat, indigestible fish of the river Don being half-cooked, and the bread ill baked, produced frequent sicknesses, and ultimately the scurvy. It also appeared in the imperial army in Hungary, about the same period, although the army had a plenty of fresh beef; but their other food consisted of a gross, indigestible bread, which was principally eaten by the Bohemians, and who were almost the only people who suffered from the scurvy. Thus, it would appear, to persons predisposed to the disease, that if they live upon any species of indigestible food, whether it be of an animal or vegetable nature, whether preserved with salt, or not at all impregnated with it, they will be equally attacked with scurvy. Having thus glanced at the error of supposing that the scurvy originates only in the use of salted food, we shall consider the diet proper for the complaint. It is not our province to enter into its details, but when the disease is established, nothing is more effectual than a diet of fresh vegetables, in restoring the system. Such is the eagerness with which this species of food is sought after, that the sailors of Lord Anson's ships greedily devoured the grass, which was the first vegetable matter obtained. The vegetables which contain the largest portion of acid, are the best, as apples, oranges, lemons, tamarinds, water cresses, horse radish, &c. The use of these, with milk, potherbs, bread, and fresh beer, or cider, will seldom fail to remove a scurvy. Of the use of lemon juice in this complaint, Dr. Lind speaks in the most decided terms. He says, that in seemingly the most desperate cases, the most quick and sensible relief was obtained from lemon juice; by which he has relieved many hundred patients, laboring under almost intolerable pain and affliction from this disease, when no other remedy seemed to avail. Dr. Trotter also confirms the above report in favor of lemon juice, and declares that it has more efficacy in removing scorbutic symptoms and restoring the patient's energies, than animal broths, or food with wine. Peruvian bark will often produce no favorable change upon scorbutic ulcers, and the most powerful stimulant applications will not alter the condition of these sores, yet in less than twenty-four hours after the use of lemon juice, the livid color of the sores, with the black clot upon their surface, will disappear, and they will put on a florid and healthy character.

We have thus enumerated several diseases, in which dieting exhibits its best effects. We might much enlarge the catalogue, but it would be tedious, and occupy more of your time in this division of the *Materia Medica*, than would be necessary. We trust that we have awakened your attention to the importance of the subject, and that, in your intercourse with the sick, hereafter, it will not be overlooked ; in short, that the particular regimen to which your patient is to be subjected, will be as particularly considered, as the properties of the medicine which, in your judgment, you shall prescribe.

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" " " Heart,	100
" " " Seneca,	127, 158, 207
" " " Virginia,	100, 306
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337	Stimulants,
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	" " " Magnesia,
	" " " Potash,
365	" " " Soda,
103	" " " Zinc,
160	Sulphur,
59	Sulphuric Aether,

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75	Wormseed Plant,	315
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- I. J. -

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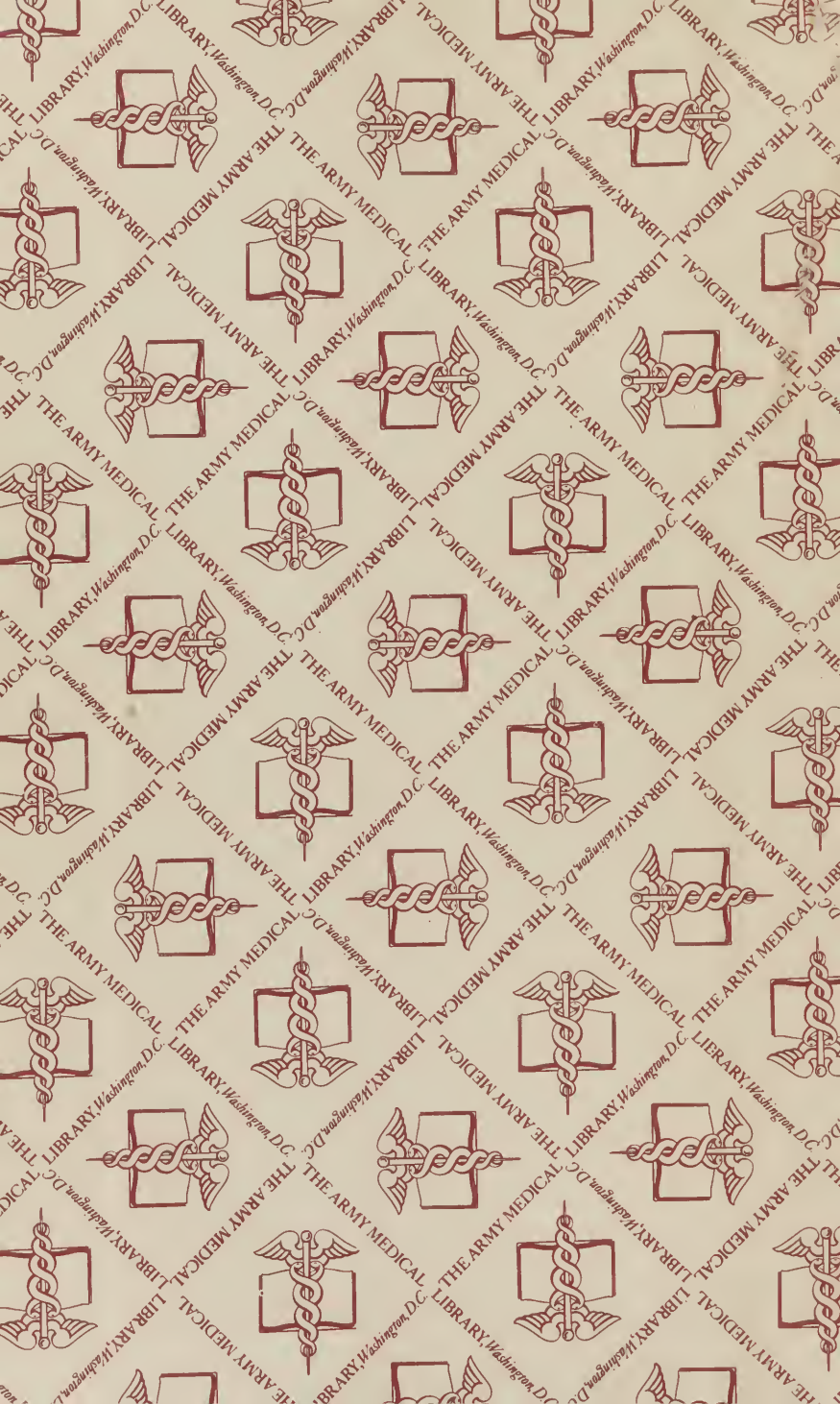
" " Physic,

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